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ABSTRACT

This document is made up of a selection of some of the papers distributed to participants in courses on "Family Health and Family Planning" which have been organized each year since 1973 by the International Children's Center and the World Health Organization Regional Office for Europe. Six courses, held between 1973 and 1978, brought together a total of 120 participants from twenty countries (for the most part around the Mediterranean) many of whom hold responsible positions at regional or national level in the health services. The following issues were covered in these courses: factors affecting family health, control of human reproduction, pregnancy and contraception in adolescence, problems of sterility, breast-feeding, sexually-transmitted diseases, sexology, health education, integration and evaluation of family planning, and finally the role and training of personnel. (Author/MP)

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Family health and family planning

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NOTE

This document is very largely made up of a selection of some of the papers distributed to participants in the courses on « Family health and family planning » which have been organized each year since 1973 by the International Children's Centre and the World Health Organization Regional Office for Europe.

The papers have been brought up to date by their authors whenever necessary. For some subjects, the authors and lecturers in the courses have preferred to replace them by more recent papers, either published in other journals or written specially for this publication. As a whole, therefore, there is a certain lack of uniformity, and the editors are conscious of the imperfections of such an undertaking. It was however considered that it would be both useful and interesting to put together these papers, reflecting as they do the integrated and multidisciplinary approach in these educational activities.

The views expressed in this document do not necessarily represent the decisions of the policy officially adopted by the International Children's Centre or the World Health Organization.

Acknowledgments

The International Children's Centre and the World Health Organization Regional Office for Europe wish to express their gratitude to the United Nations Fund for Population Activities for the financial assistance given for the publication of this document.

This document is also available in French.

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FOREWORD

In the past fifteen or twenty years, family planning and the services responsible for it have aroused increasing interest in many countries. Several factors are responsible for this development, among them particularly the growing awareness of the health benefits of family, the recognition that couples have a basic right to decide whether they want a child and, if so, when it shall be born, and finally, the anxiety caused by the demographic problem.

The integration of family planning activities in basic health services, and more especially in maternal and child health services, leads to the need for all types of health personnel to be given training appropriate to their new responsibilities and their previous level of education.

In order to assist in accomplishing this essential task, the WHO Regional Office for Europe, jointly with the International Children's Centre, has organized each year since 1973 a course on family health and family planning, in which the Clinic of Gynaecology and Obstetrics of the Free University of Brussels also takes an active part. The course is financed by the United Nations Fund for Population Activities.

The present document contains a selection of papers distributed to participants in this course. It does not claim to replace existing books, and its value lies in the fact that it provides an illustration of the integrated approach to family planning and family health. It is hoped that it will be of interest not only to past and future participants in the course, but also to all professional workers, teachers or practitioners, engaged in family planning activities.

I have great pleasure in stressing the excellent cooperation which exists between the International Children's Centre and the WHO Regional Office for Europe, and should like to express my gratitude to Professor M. Manciaux and the staff of the Centre for the support they have unfailingly given to the Regional Office's programme for promotion of family health and family planning.

Leo A. Kaprio, M.D.
Director
Regional Office for Europe
World Health Organization

PREFACE

FAMILY HEALTH AND FAMILY PLANNING : THOUGHTS ON THE BACKGROUND TO A TEACHING PROGRAMME

Let us begin by comparing two maps of the world, as shown in a publication by INED* (diagrams I and II).

We are familiar with the position of the world's population in 1973, and in spite of the schematic presentation of the map it is easy to recognize the « demographic surface » corresponding to the chief countries in the world : the basic unit represents 15 million population.

The projection for the year 2075, on the other hand, is disturbing : it should be noted that the scale used, although equal in surface to that of the 1973 map, in fact shows a world population that has more than doubled - to 39 million. But what is most surprising is how the size of the various countries has become distorted in the light of their estimated populations for the year 2075 ; and it must be remembered that the assumption on which this futuristic projection has been based is that of an average population increase.

If we now compare these demographically-based maps with two other graphic representations of the world (diagrams III and IV), the first of these is familiar to us because it represents the globe in terms of the actual surface of the various countries. The other, however, based on the countries' gross national product, once again gives a completely distorted view of our planet. We may of course contest the value of the parameter used, stress its lack of significance in certain economies and the unequal distribution of the gross national product within any one country : the figures are still there, however, and give food for thought.

It is tempting to say, on looking at these diagrams, that all that is needed is to stabilize the population of developing countries in order to obtain a better world balance by progressive increase of their incomes and a more equitable distribution of their resources. But we know by experience that such a proposition is over-simplified, and in any case difficult to achieve. Even if present trends were towards a slowing down of demographic growth, as is the case for some sountries, we know how slow developments are in this field ; we also know that with a growth rate of 3.2 per cent - a figure which is quite common in developing countries - the population will double in a generation, thus destroying in advance many of the efforts being made for social and economic development. But above all we know that family planning, which would be a means of achieving such a slowing-down of population growth, is only acceptable to a population once there has been a decrease in child mortality, so that parents have an assurance that the children they

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* INED = Institut national d'Etudes démographiques, Paris.

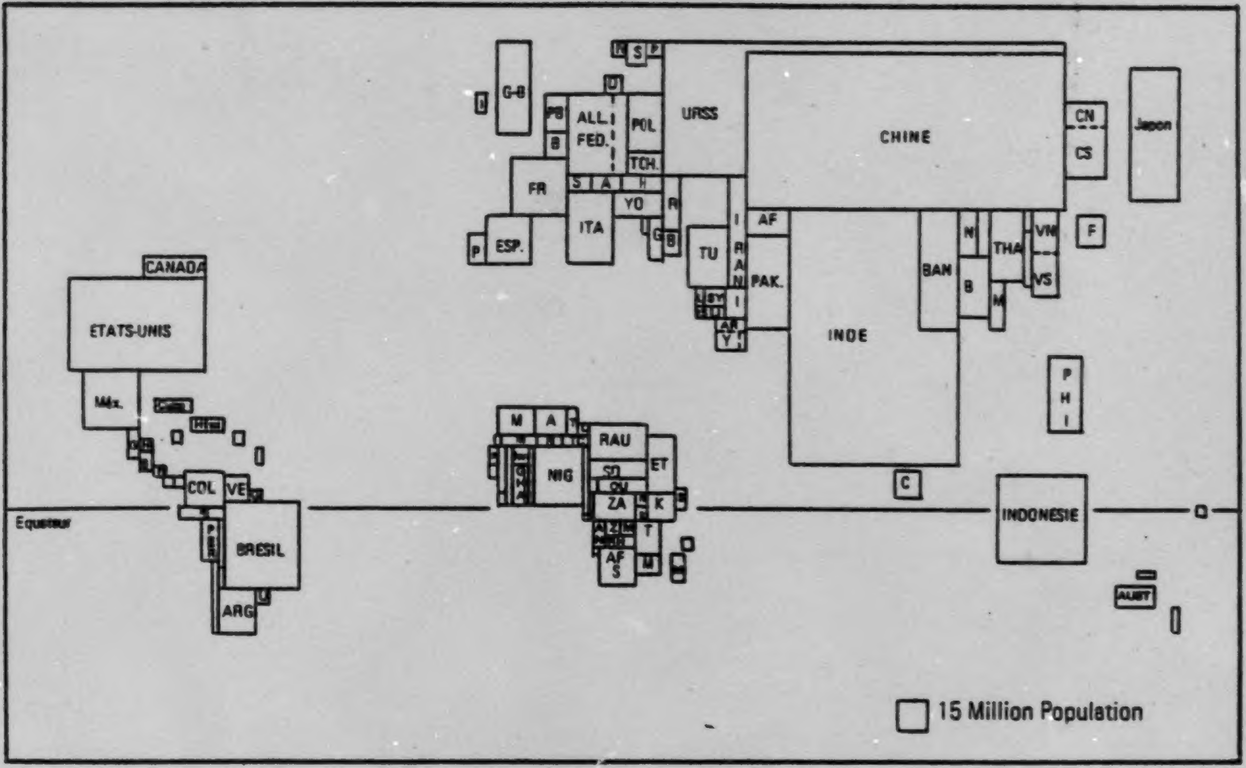
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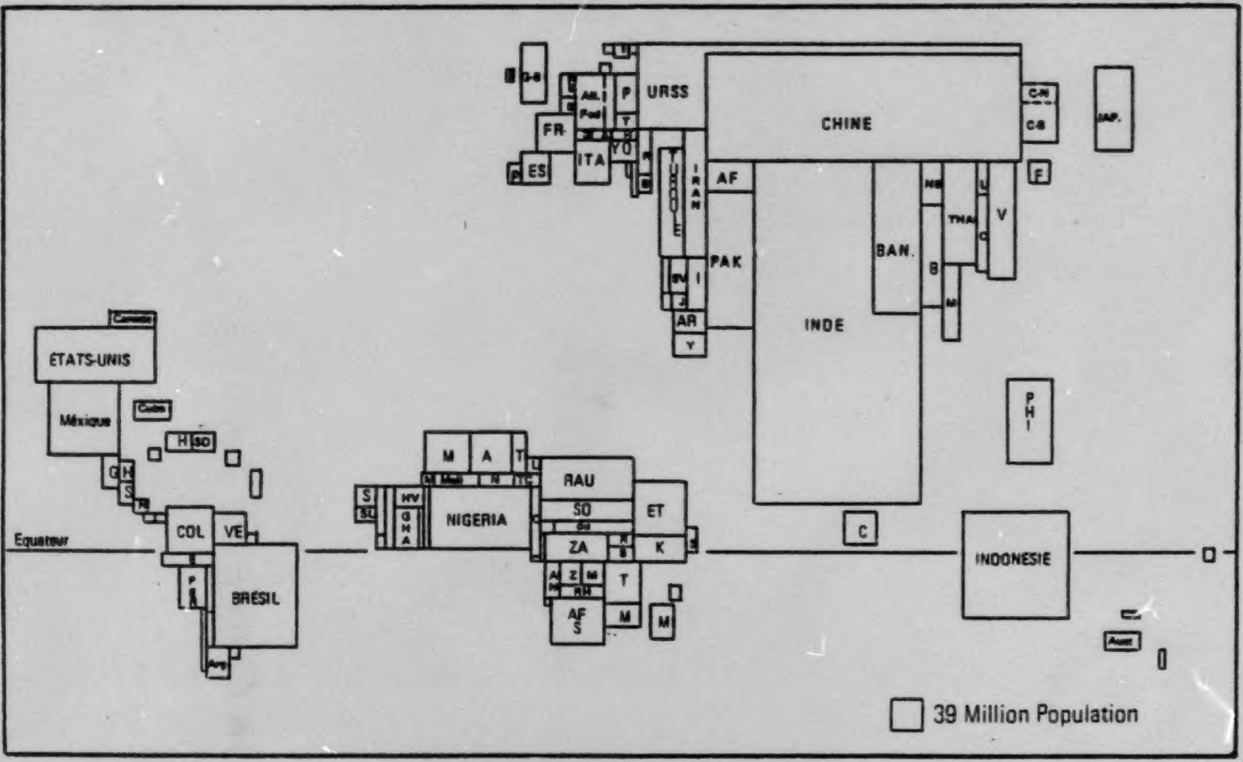
Diagram I : POPULATION OF THE COUNTRIES OF THE WORLD IN 1973
(taken from «Population et Sociétés», INED - Paris, 1974,84)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39 Million Population

Diagram II : POPULATION OF THE COUNTRIES OF THE WORLD IN 2075
(taken from «Population et Sociétés», INED - Paris, 1975,84)

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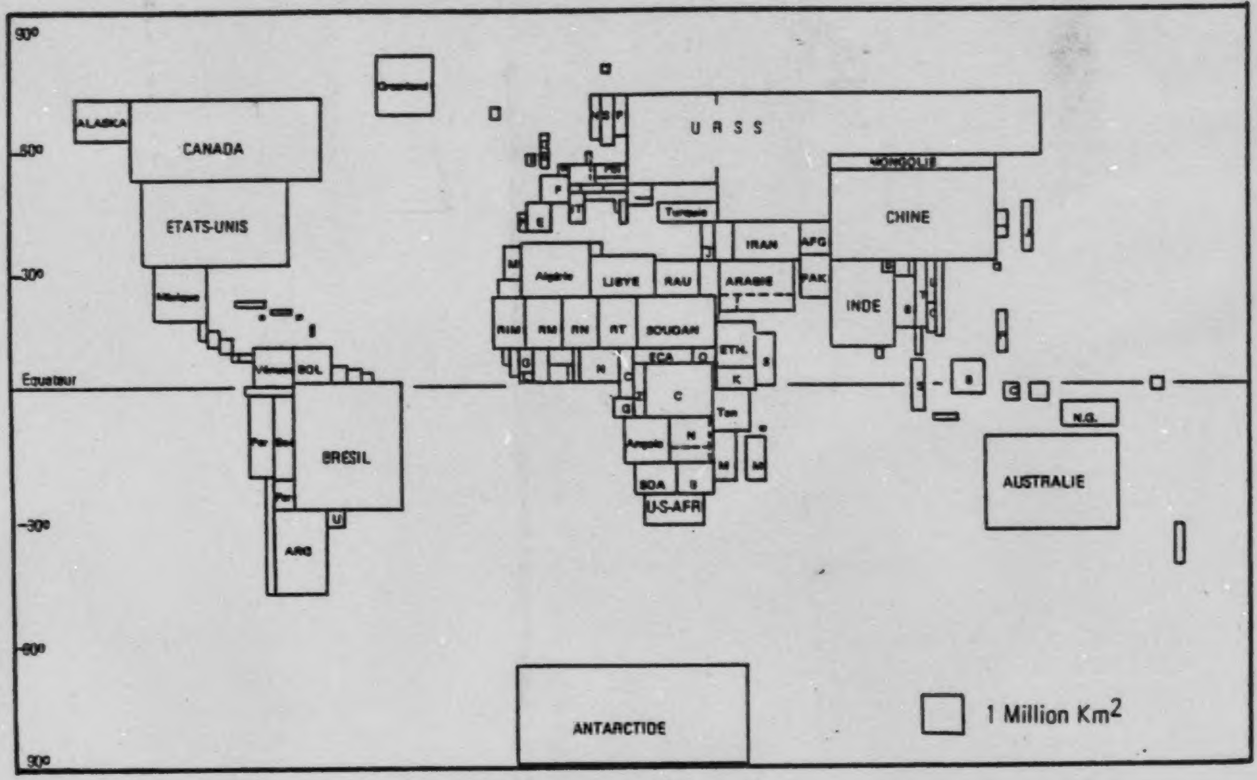
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Diagram III: SURFACE OF THE COUNTRIES OF THE WORLD
(taken from «Population et Sociétés», INED - Paris, 78)

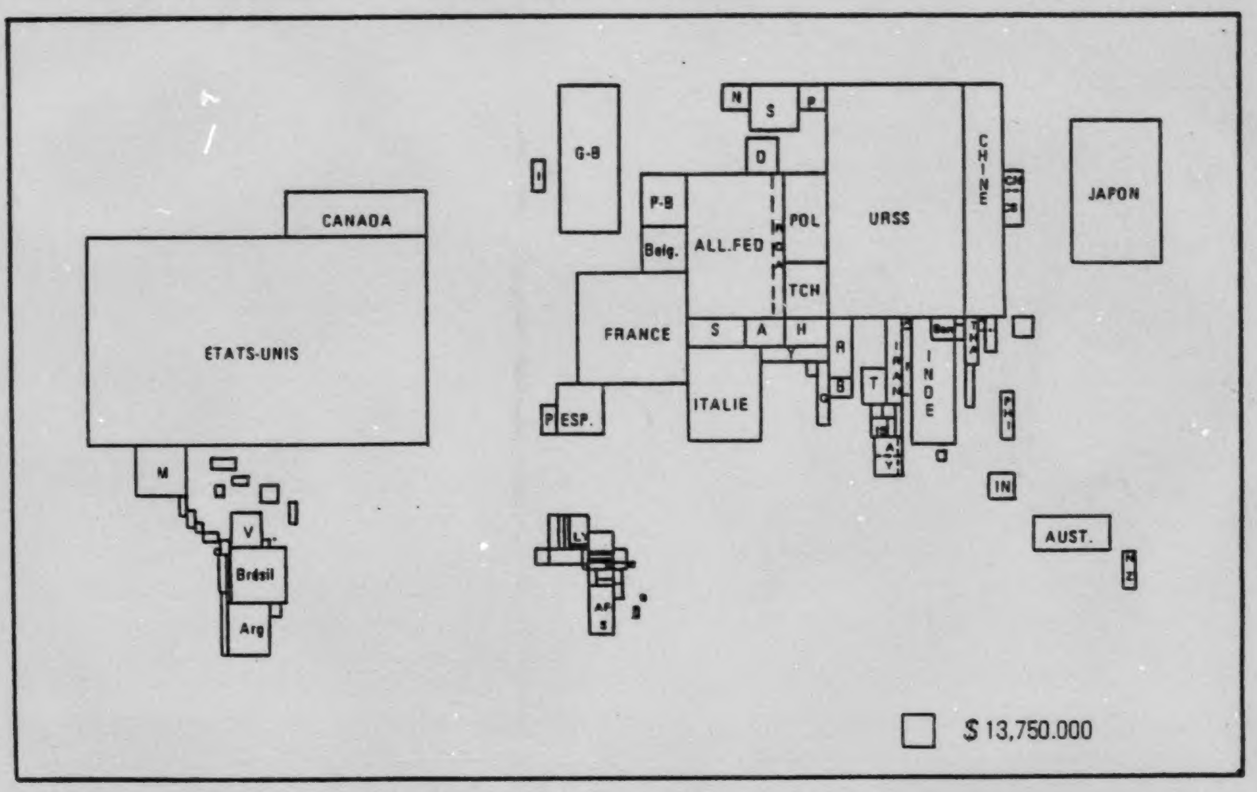
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Diagram IV : DOMESTIC GROSS NATIONAL PRODUCTS IN 1973
(take from «Population et Sociétés», INED - Paris, 1975,78)

have brought into the world will survive. Several studies by WHO have shown that the time needed between a decrease in child mortality and a subsequent decrease in fertility is on average about thirty years, and that this time-span is only reduced if definite social and economic development takes place in the meantime.

Finally, since the first World Population Conference (Bucharest, 1974), we have been aware that poor countries quite rightly will not accept a limitation of their birth rate which, when proposed by rich countries, often seems to them to be a selfish manoeuvre to preserve the existing balance and the existing distribution of world resources - a balance which is in fact an intolerable imbalance. Why should poor countries agree to slow down their demographic growth when they often consider their young people as their chief source of wealth ?

It is clear that the problem is wellnigh insoluble, especially if it is reduced to a solely demographic plane. In fact, the World Health Organization has placed it on quite another plane by laying emphasis on the beneficial effects of family planning on the health of the family - especially that of mothers and children, including those still unborn - on the stability of the couple, and on the health of the community. This is exactly the line that the International Children's Centre has also adopted, and it is not without its problems and risks. The planners, whose concerns are primarily of a demographic order, may reproach this conception of family planning with not being sufficiently committed, and with having an individual rather than a collective effect ; they will then keep their funds for programmes which appear to go more directly to the root of the problem. Some governments and some private organizations, on the contrary, may reproach it with being a disguised means of imposing family planning : indeed, the term family health programme, which in some countries is given to projects concerned only with birth control, perpetuates this misapprehension.

It is undoubtedly to the credit of the WHO Regional Office for Europe and the International Children's Centre that over the years their annual courses have progressively developed a doctrine based increasingly on the health benefits for the entire family of programmes of family stability. Intended mainly for administrators, physicians, and midwives responsible for planning or managing family health and family planning programmes, these courses have made possible a very wide exchange of ideas and experience, some innovative, others more traditional, and have led to progress in understanding of the problem. They have certainly helped to give weight to the concept of family planning as a truly integral part of family health programmes. The six courses held between 1973 and 1978 have brought together a total of 120 participants from twenty countries (for the most part around the Mediterranean), of whom many now hold responsible positions at regional or national level in the health services. The aims of these courses have been refined over the years. Although the idea behind them remains the same, scientific progress which has been so rapid in this field has been taken into account, and the doctrine which has emerged from these various educational activities has certainly become clearer both conceptually and in terms of concrete action. Now the work always begins with a diagnosis of the situation and of the country where the course is being held, to give a better understanding of the social, economic and cultural characteristics, the needs, and the requests, and to show staff, on the basis of this initial knowledge of the community, how to adapt programmes to the local context. For this reason the courses, which were originally given at the International Children's Centre in Paris and at the Free University of Brussels, have

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now deliberately migrated to the countries requesting this teaching activity ; this is a beneficial development, and an evaluation of it which is at present being undertaken will undoubtedly show its effects more clearly.

The papers presented in this document have been selected among the very large amount of teaching material used for these courses. For the most part they have been brought up to date, but in spite of the careful choice made in their selection, they can only represent a compartmental and incomplete approach to the vast problem of family health and family planning. This document is therefore simply a working and reference document, and lays no claim to being exhaustive. It deals successively with the factors affecting family health, the elements of physiology which give an understanding of how human fertility is controlled, problems of sterility and infertility, breast-feeding, and sexually-transmitted diseases. A further section deals with sexology and with health education. Finally, the document closes with two chapters devoted respectively to integration and evaluation of family planning, and the training of staff responsible for these activities.

These papers have been put together, revised, and coordinated by Dr M. Péchevis and Ms M.J. Bonnal, of the International Children's Centre's, training department, and have been translated into English by Ms M.J. Chaaban. It is their work which has given the document, if not complete uniformity, a continuity which the reader will certainly be quick to appreciate.

It should be mentioned that the International Children's Centre, to supplement this effort, has recently started to produce - and will continue to do so - a bibliographical bulletin containing brief analyses of articles or recent publications on family planning : as for the present document, the publication of the bibliographical bulletin has been made possible very largely by financial support from the United Nations Fund for Population Activities, to which our warmest thanks are due for its assistance. But this assistance has certainly been doubly effective because of the unique cooperation that has existed for many years between the WHO Regional Office for Europe and ICC, and that has been yet further strengthened on this occasion. For this we must thank most particularly the Regional Director, Dr L. Kaprio, and Miss W. Haddad, Officer for Public Health Nursing and Midwifery.

The value of this document lies especially in the spirit in which it was thought out and prepared. It originated in the wish of the participants in the courses to have reference material available after the courses were over, and the bibliographical analyses mentioned above ensure that this material is kept up do date. Above all, it originated in the cooperation of all those who in one way or another have taken part in this educational activity and helped to make it attractive and of outstanding interest : the team from the Department of Gynaecology and Obstetrics of the Free University of Brussels, and its head, Professor P. Hubinont, have undoubtedly earned our special gratitude for the constancy, friendliness, and quality of their cooperation. It is to be hoped that all that has been put into this work will produce the desired results, and that, in addition to the participants in the courses, who are necessarily few in number, this book will also be useful to the very many more who read it. This will be the best reward to those who have contributed to its preparation.

Professor Michel Manciaux
Director General
International Children's Centre

CHAPTER I

INTRODUCTION

N.P. MASSE†[*] and P.O. HUBINONT[**]

The papers which have been put together in this document have been presented at various courses organized under the sponsorship of the WHO Regional Office for Europe by the International Children's Centre and the Free University of Brussels - in particular the Clinic of Gynaecology and Obstetrics of Saint-Pierre Hospital.

In this general introduction, it may be useful to go into the following three points in some detail :

- family planning ;
- the concept of family health ;
- certain aspects of the courses.

Family planning.

It appears necessary to give some explanation of what we mean by this term. Like all expressions that become popular, « family planning » has undergone changes in meaning and has been used in contexts which have often had nothing whatever to do with its original intentions. This results from confusion, sometimes accidental and sometimes voluntary, between :

- succeeding in controlling the function of reproduction and the individual right of a woman, a man, or a human couple to bring only children who are wanted into the world ;

- and a kind of State planning, nationally, internationally, or by a foreign country, aimed at controlling demographic phenomena which are explosive to varying extents in certain countries or regions of the world.

When we included the word « planning » accompanied by the adjective « family » in the title of these international courses, we also attributed the same adjective to the word « health », considering that in the social structures which prevail throughout the world family health is the basis of public health, and that indivual health is a fundamental factor permanently interrelated with family health. In the case of the reproductive function, the life of the couple, and the building of the primary family, which is where family planning comes in, events also start with individuals, long before they embark upon a heterosexual relationship, and with couples before they start to build a family.

Here again we have the concept of personal responsibility towards the involuntary or deliberate consequence of heterosexual life : pregnancy and the birth of a new human being. This responsibility has of course always existed, but the difference nowadays is that it is possible to choose one of the two aspects and one of the two channels of this responsibility by a deliberate decision to procreate or not.

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[*] Paediatrician, Director of the Training Department, International Children's Centre, Paris.

[**] Professor and Chairman, Department of Obstetrics,Gynaecology and Human Reproduction, Free University of Brussels.

In other words, there are now two sides to the responsibility :

- the long-standing one that individuals have always had to take towards pregnancy or the birth of a child following the sexual act ;
- the one that individuals take at the time of the sexual act by deliberately choosing not to have a child when they are not ready to take the consequences.

For this reason, we shall take family planning or family health to mean everything that is connected with the free exercise of this human responsibility, not only in its theoretical aspects but also in the whole field of practical services which enable individuals to apply these principles in everyday life. For what is the use of principles and theories if there are not also the opportunity and the means of putting them into practice and taking them to their logical conclusion?

The concept of family health.

Family planning obviously has a direct impact on family health. It is important to recall the definition of family health within overall health as stated by WHO and universally accepted. This concept has long been in existence and is implicit in the idea of maternal and child health (MCH) and thus in the services organized for this purpose.

MCH services have been developed particularly since the end of the second world war in all countries, whatever stage of economic, industrial and social development they have reached, and it can be stated that the most successful models are not necessarily found in the most developed countries. In general, MCH services have achieved satisfactory results for the health of both mothers and children, but such results might only be temporary if organizations remained too rigid in their thinking and did not take into account irreversible changes in the nature of the problems both in time and space.

The nature of the problems, and thus the way of responding to them, necessarily varies from one country to another and from one region to another, and strategies which have been entirely sucessful in one place cannot be transferred just as they are to another country or region, at least without adequate preparation of the services as well as people's minds. The same applies within a given country or area, where it must be considered that MCH services, by improving the health of mothers and children quickly and decisively through reduction of morbidity and mortality (often the first perceptible result), will at the same time change the very conditions in which they are called upon to work by changing the nature of the health needs.

It is fairly simple, but perhaps an over-simplification, to consider that the organization of family planning services is difficult and less urgent when nutritional conditions are poor, when infections abound, and when the two combine to cause terrible child mortality, of which the most obvious result is that parents only rarely see their children reach adulthood. In the opposite situation, the strategy would include an important component of birth planning when overall development, together with the results of effective MCH services, leads to demographic problems within the family, with all their consequences for the economy and for health. The best thing is for the various components of the strategy to be present at all stages of development, if only to avoid having to break down existing structures or cause painful upheavals by the extemporaneous introduction of one or another of these components.

In the early days of MCH services*, much emphasis was placed on a concept to which many paediatricians still subscribe : that of the couple formed by mother and child, where the mother certainly plays an important rôle since she is the seat of pregnancy and both then and later, by breast-feeding, the best source of food for the normal growth of the foetus and the infant. This far too dualistic view appears to ignore the fact that before pregnancy the mother was involved in just as basic a relationship with a man, the relationship of a heterosexual couple which is only partially a procreative relationship and which in principle is destined to last longer than the mother-child relationship. It is wrong and unnatural to compare the mother-child couple with the husband-wife couple, or to substitute the former for the latter.

A later stage was that of the relationship between a mother and her children (in the plural), because economic, emotional and health problems and needs may be considered to vary according to the number of children and their spacing.

The present development of the concept of family health results both from the reintegration of the adult male element, the father, and the increasingly marked tendency to reduce the family to a nuclear model, as a consequence of urbanization and industrialization. This might be called the stage of father-mother-children relationships, which comprise :

- the relationship between husband and wife as members of a couple and as parents ;
- the relationships between the father and the children, the mother and the children, the parents and the children, and perhaps even more clearly between father, mother, or parents and girls or boys ;
- the relationships among the children themselves, where attention should perhaps be drawn to the fact that they are at the same time their parents' children and at their own level brothers and sisters.

To see the framework of family health as a system of relationships is not a mere intellectual exercise if health is considered in the widest sense as called for by WHO, and if the complexity of the contacts between the family thus defined and its human and physical environment is taken into account.

Among the human rights recognized by the Charter of the United Nations, although the nuclear family is recognized as the basic unit of human society this autonomy implies not only rights but duties, awareness of the needs and responsibilities of each member of the family whose instrument is above all communication (that is, a system of complex internal relationships - physical, mental and social) among its various individual members, and their various rôles within the family group as well as to the outside world.

In other words, whereas MCH services formerly developed as a protection, with the establishment of mechanisms working from outside and taking mothers and children as comparatively passive objects of their action, in which even health education was usually concerned with laying down rules and being paternalistic, the modern concept aims at giving individuals an independent sense of responsibility towards their problems, more particularly those connected with their own health and that of the social group to which they belong.

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* M. MANCIAUX : Evolution et tendances de la PMI. *Rev. Epidém. Méd. Soc. et Santé publ.*, 1971, *19* : 387-398.

Thus in theory at least the concept of protection has given way to that of wellbeing, and even greater wellbeing, which implies for the individual dynamic action to take in hand his own destiny and the destiny of those with whom he is directly linked, for instance through family ties.

This implies access to :

- complete information in a form which is understandable to all ;
- all the necessary services, suitably adapted, and available to all without restriction.

That is to say, education (or intellectual equipment) and technical equipment. Both must go together, and it follows that health education without the technical means of carrying it out, is incomplete however well presented, and inevitably leads to frustration and misses its objective, since it cannot take hold of tangible realities ; however excellent may be the investment and establishment of health services, if they are provided in isolation those for whom they are intended are subjected to them without being able to participate actively, take personal responsibility, or achieve independence and development. This mistaken approach is very often the cause of bitter failure in programmes that have been set up with considerable effort.

Certain aspects of the courses.

Before closing, a few comments are called for on the courses and the philosophy behind the preparation of the curricula, other than the considerations that have already been mentioned on the significance of family planning and family health. These considerations may be summed up as three essentials :

- making individuals responsible with regard to their sex life and their reproductive function ;
- providing complete information in this field, including the prevention of unwanted pregnancies ;
- making health techniques available, including contraception and termination of pregnancy.

It was considered useful to start the courses with an inventory of problems connected with family health in the economic, social, and socio-biological fields, according to the composition and size of the family.

After that, it seemed essential to review the biological mechanisms which lead to fertilization and pregnancy, and the stages of development, or rather of the continuous growth phenomenon which begins with fertilization and only ends well on in adult life.

A review was then made of the various methods of contraception, sterilization, and voluntary termination of pregnancy, as well as their psycho-social aspects.

Another part of the courses was devoted to the didactic approach to sexuality, the life of the couple and its difficulties, with a view to finding if possible appropriate solutions to the problems which threaten the harmony of the parents as a couple, so important for the development and future of the nuclear family.

Finally, the rôle and training of health staff were studied, and an effort was made to integrate the elements of the course into the perspective of family health, and the latter into overall public health.

The experience gained by this type of activity seems to have been found very well worthwhile by everybody, since its value is deep-rooted in the permanence of human beings and their problems.

FAMILY HEALTH

M. MANCIAUX*

Family health can only be defined by first of all finding out what is meant by each of these terms in association. There are many definitions of health, of which even the humorous one : « A precarious state which augurs no good », is partially true. The definition adopted by the World Health Organization rightly emphasizes the positive and many-sided aspects of health. But perhaps the definition put forward by the American biologist R. Dubos is better : « A potentiality : the ability of the individual or social group to be in continuous change, in order not only to function better in the present, but also to prepare for the future ». This broad concept, at the same time individual and collective, dynamic and prospective, seems to be the one best suited to the family, an all-important social group in continuous evolution which certainly lives in the present but is permanently working out its future, especially for its younger members.

Although the family itself cannot be defined, for it is a state of living, we may attempt to describe its structures and functions. Among the very many family models known today, two functional types may be distinguished for purposes of simplification :

- the unit of reproduction, limited to the two parents and the child, in which genetic factors are predominant ;
- the unit of upbringing, otherwise known as the domestic family, which may extend from the nuclear family (father - mother - children) to the household in which different generations live together under one roof, including blood-relations, relations by marriage, and people with no particular relationship. At this level, social factors take precedence.

Reproduction and upbringing may in fact be the function of one and the same unit, especially in the urbanized western world, although the situation is often quite different elsewhere, and the restricted nuclear family is not necessarily a «model». The increasingly marked separation between the generation excludes the grandparents from their children's small apartments in buildings concentrated in large towns, and deprives their grandchildren of important emotional contacts and solid reference bases which would help their personalities to develop. As a sociologist has said in substance, the changing family structure in industrial societies is not always a factor of progress ; it is often a sign of instability and a reflection of social upheaval. The same may be said of the traditional structures common in many developing countries (tribes and clans), which often play the rôle of the extended family and which it is a great pity to see disappearing with the advent of «civilization» and migration to urban areas.

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Stages in the life-cycle of the family.

The family has a life-cycle in the same way as a human being. It has its preparatory period, it is born, it grows, it lasts a certain time, and finally it shrivels and dies, usually after reproducing itself. And there are different health problems associated with these different stages.

Family preparation is the period when two young people meet and choose each other in order to found a family together - unless this choice is made for them by others ! In countries where certain genetic diseases are very widespread, such as haemoglobinopathies or certain enzyme deficiencies, special genetic counselling services are sometimes available to discover these diseases in those who suffer from them unknowingly and may transmit them to their children in a serious form if their partner suffers from them too.

Marriage itself, which marks the birth of the new family, should be preceded by health education, including among other things information on human reproduction and the means of controlling it. In many countries there is pre-marital medical examination to ensure that neither of the partners is a carrier of a disease which may be dangerous for the other, or for their children. This is a good example of preventive measures for the family.

Family extension starts with the birth of the first child and ends with that of the last child. During the whole of this reproductive period, maternal and child health (MCH) services must supervise the health of the mothers and the children, as well as the balance and well-being of the whole family ; the father's health should preferably also be supervised, especially in view of risks which may be linked with his work.

Once the family is complete in demographic terms, it would appear to be less subject to health problems, on condition, that is, that the size of the completed family is not excessive and thus undermines the health of the mother on whose shoulders rest so many tasks and responsibilities ! Here again, family health has its rôle to play, in terms of a clean environment, proper nutrition, protection against communicable diseases, and - underlying all these activities - individual and family health education.

The family begins to shrink with the departure of the first child who leaves home to work or to found his or her own family. The others follow suit one after another, and for the parents, who are growing older, each departure is harder to bear, especially if the family is isolated from the community. At this level the problems are perhaps more of a psychological than a health nature, but it would be a mistake for health personnel to underestimate them.

The disappearance of the family begins with the death of the first partner, and is completed when the other also dies. It is easy to appreciate that during these last two stages suitable care should be provided for the older generation. Family health goes beyond the age-limits traditionally covered by maternal and child health care, and must take care of the family throughout its life-cycle, without neglecting the geriatric aspects.

This is the life-history of many families in the world, and the health activities linked to it. It is obvious that the health and social implications of these different stages in the family's life-cycle vary according to whether the family is isolated, reduced to parents and children only, or on the contrary integrated in a wider circle. Along this family life-line crises may occur - individual or family illness or premature death, for example - and the whole group is affected or sometimes even destroyed by these crises. An extended family in which several generations live together is obviously better prepared to stand up to such events.

Functions of the family.

Whether the family is large or small, it has functions to fulfil which respond to the needs of its components : production, reproduction, and upbringing and education of the children. The needs to be met are not only the biological needs for food, clothing and shelter ; equally important are the psychological needs for affection, security, identity, dependence, and - for the adults - sexuality. The upbringing and education of the children are above all the responsibility of the family in the first few years when the child is so closely dependent on adults ; and the right kind of affective stimulus at this age is clearly just as important for harmonious development as correct feeding ; later on the child's field of activity widens and other influences - of which school is the most important - will model his personality. When the child reaches adolescence he will even try to be different and to break away from the family group.

There are subtle reactions among these different functions. Excessive reproduction without a corresponding increase in the means of livelihood, for instance, is bound to lead to insufficient coverage of nutritional needs which is aggravated by a method of distribution which usually penalizes the weaker and more delicate members of the group, that is, women and young children. Transposed on a world scale, is not this the present drama of humanity ?

Another functional relationship has always existed between sexuality and reproduction. It is only in recent years that a distinction has been drawn between sexual life and procreation ; this gives an opportunity for judicious family planning to have its effect on birth-spacing and on the rate of increase in family size.

The functions of the family obviously vary according to its composition, and more particularly according to the stage it has reached in its life-cycle. Nature or tradition have attributed certain of these functions either to the woman (procreation) or to the man (production), but there are also neutral functions that can be fulfilled by either one or the other. A study of human societies, indeed, shows great variation in the distribution of these functions among the different members of the family, and there are almost always basic reasons to justify or at least explain this. No-one should work in family health in any country without knowing how families function in that country, and why those functions are as they are ; if this is not taken into account the work may suffer from serious errors of judgment and behaviour.

For a variety of reasons some families, either temporarily or permanently, cannot or can no longer fulfil their functions adequately : these are « problem families ». In traditional societies the extended family, the clan, or the tribe make up for this deficiency, but in industrial societies it falls increasingly to the lot of the State or the community. Countries or areas in a stage of rapid development, and of often disorderly urbanization, are in an intermediate situation where traditional structures are no longer available, whereas the community is not yet capable of offering its members a system of social security ; this results in insoluble and sometimes even tragic problems.

The two key aspects of family health.

It may be asked whether it is possible to envisage family health in the light of this description of the family. We believe it is possible, at least in two directions which in fact complement each other : the family as a unit of health and as a unit for care.

The family is a health unit first of all in the negative sense. If one of its members falls sick the whole family suffers, or the health of the whole family is threatened. Here one thinks naturally of communicable diseases and parasitic infestations which are transmitted so easily from one member of the family to another in the intimate conditions of communal life. But we must not forget genetic diseases which weigh so heavily on a family, poverty and misery, and the ignorance of parents who so often prevent perfectly normal and gifted children from fully developing their personalities. We should also remember the psychological and social repercussions on the whole family of a chronic disease or an infirmity in one of the parents or in a child. There are unfortunately numerous examples of this - alcoholism in the father, to name but one.

Fortunately there are more positive aspects to provide the image of a healthy family : parents who are healthy and united ; children who are wanted and who are stimulated from an early age, who are brought up and educated with the help of preceding generations, who are protected from the dangers which threaten their health but very quickly become aware of their own responsibility in such matters - such children will be able to face the various stages of their socialization even if it begins early without coming to harm.

As a unit for care, the family offers health and social workers the opportunity of a global approach which optimizes individual care by making it more accessible, more acceptable, and more efficient, and which takes into account the dynamics of intra-family relationships for purposes of prevention, health education, and curative care.

As far as prevention is concerned, numerous activities may be cited which concern the family and even the household as a whole, whether it be immunization, protective measures against environmental hazards, or birth-spacing in order to maintain a rate of growth of the family compatible with the health of all its members, especially the mother and the children already born. If a family file is kept up in each health centre or dispensary, the health needs of each individual can be taken into account in this context when they attend the centre or during home visits. In the same way, by making family health check-ups it is even possible, often at a preclinical stage, to identify anomalies or risk factors in one member of a family which can be put right in time to avoid the occurrence or aggravation of pathological states at the level of the whole family.

Health education has for a long time used the family group as a base, selecting important moments in its life-cycle to pass on the educational message (for instance, information on family planning to a mother soon after the birth of a child), or using as a vehicle of this message one or another member of the family who may be more easily accessible or who has the greatest influence in the family circle : this may be the child who brings back from school advice on hygiene or balanced nutrition, the husband who can be persuaded of the benefits of sufficient spacing of births, or the grandmother who can be used as an ally in the campaign against home accidents, etc.

When it comes to medical care, it would seem even more logical whenever possible to follow this strategy : all the members of a family who are suffering from the same disease (nutritional, infectious, or parasitic, for instance), or have a common predisposition to obesity, diabetes, or atherosclerosis should be treated and cared for at one and the same time. The family should also be used in the long-term treatment of a chronic disease in one of its members. Beyond the patient, the effect on the whole group and the risk run by those around him should be considered systematically.

Conclusion.

Seen in this light, family health may seem to be simply the sum of the health of the individuals who make up the family. In fact, however, it means much more, for it takes into consideration interpersonal relationships within the family circle as well as the biological and social environment in which this group functions and lives. Thus, the most important indices of family health are probably the composition of the family, its growth dynamics until completion, the physical and psychological development of the children, and on the negative side - for quality of life and happiness are difficult to quantify - morbidity and mortality rates in relation to family structure, and the crises, whether temporary or longlasting, which may even lead to dislocation of the group.

Furthermore, while family health and community health are distinct from each other, at the same time they are closely linked. A community cannot be healthy if the families which make it up are in poor condition, and one of the sores of many modern societies is undoubtedly the existence in their midst of underprivileged, asocial and marginal families which are excluded from the benefits of expansion and from social and economic progress. If this situation can be remedied, community health will be promoted at the same time. As a further step each family - through education rather than coercion - must be made responsible for its own health problems as well as for the welfare of the community of which it is a part. By making full use of such families public health aims and activities will come to be accepted.

The final word may be drawn from a recent WHO report*, which states :

> « In spite of its central rôle in society, the family has been infrequently
> « studied from the community health point of view. Nevertheless, over recent years
> « there has been increasing interest in the interrelationships between the family
> « and the health of its members and the implications of these interrelationships for
> « the health care system. It is being increasingly recognized that since the family
> « is the unit of living it should also be the unit of illness. In addition, the fact that
> « the family is the bio-social «cell» within which reproductive behaviour, socializa-
> « tion patterns,emotional development, and relations with the community are deter-
> « mined has given a fresh impetus to a broad multidisciplinary interest into research
> « on the family. Just as family patterns, and changes therein, are important in re-
> « lation to the health of the individual members and affect their use of health ser-
> « vices, so health contributes significantly to changes in family organization and
> « attitudes, and affects the family's response to change. In the present era of rapid
> « change in traditional societal patterns and organizational forms there is a practi-
> « cally universal tendency towards the small, nuclear family pattern and the impli-
> « cations of this tendency for reorientation and adaptation of the health care system
> « are assuming decisive importance ».

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* Statistical Indices of Family Health. Wld Hlth Org. Technical Report Series, 1976, n° 587, page 6.

FAMILY PLANNING

M. MANCIAUX and W. HADDAD*

Family planning enables a free choice to be made as to the number of children one has and when they are born. Nowadays this freedom of choice is recognized as one of the fundamental rights of the human being, and more especially of the woman.

Family planning is thus a method of prevention, but it is also curative to the extent that it is also concerned with the treatment of sterility, especially when this arises unexpectedly before the family has achieved the number of children wished for.

1 - *Why family planning ?*-

A recent report of the World Health Organization Expert Committee on Maternal and Child Health states that : « Family planning can... favourably influence the health, development and wellbeing of the family and has a striking impact on mothers and children. The health benefits of family planning result from (a) avoidance of unwanted pregnancies and the occurrence of wanted births that might otherwise not have taken place; (b) a change in the total number of children born to a mother ; (c) achievement of an optimum interval between pregnancies ; and (d) changes in the time at which birth occur, particularly the first and the last, in relation to the ages of the parents and especially that of the mother(1)

The connexion between family planning and family health is obvious, although it has only recently been recognized.

The deleterious effects of excessive and uncontrolled fertility of the life and health of the mother and child have now been proved scientifically. They are responsible for increases in maternal, perinatal and infant mortality, a heightened risk of malnutrition and infectious morbidity, and, especially for children, poor physical growth, a lower level of intellectual development, and a greater likelihood of low birth weight in later pregnancies. Birth rank and maternal age are closely correlated here, which proves that the rhythm at which the family is built up is at least as important as its size.

On the other hand, the beneficial effects of judicious birth spacing in terms of physical and mental health are worth emphasizing. « Rates of late foetal mortality and neonatal mortality appear to be minimal when the interval between pregnancies is two to three years »(2) Thanks to this kind of spacing, nutritional disasters due to too rapid weaning can be avoided, and the mother can devote more time to her children. D. Morley(3) has shown that in countries where the interval between pregnancies averages 34 months, a family does not contain at any one time more than two children under five years closely dependent on their mother ; when the interval is 17 months there are frequently three or even four children under five years in the same family at the same time. In such conditions, how can the mother maintain any kind of balance between her various rôles of woman, wife and mother ? Even this last function is sacrified if it has to be shared among too many children, who consequently suffer from a lack of maternal care as serious as physical malnutrition, while the mother suffers from sheer mental exhaustion as well as from the depletion syndrome described by Jelliffe. Thus the balance of the family is in jeopardy, and family planning will come too late to redress it. Family planning programmes must be introduced at an earlier stage : post-partum is a key period, and young mothers after a second childbirth following closely on the first are a target population.

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Family planning, however, must not be limited to equating the number of children to the family's capacity to absorb them while at the same time maintaining its balance. The notion of number is unsatisfactory and should be replaced by that of birth spacing and the growth dynamics of the family group. Quantitative must give in to qualitative dimensions, as summed up by Kenny in the phrase : « Better, fewer babies ». One of the most powerful motivations for birth spacing is this idea of the mother's availability to provide milk and also affection which gives the newborn child the best start in life. No traditional, social or religious taboos can stand up against this method of presenting family planning.

To limit the family's size to its capacity to absorbe new members may also be an additional disadvantage for socially underprivileged families, as it deprives them of their legitimate right to have the number of children they wish for on the grounds that they are not well enough off to bring them up decently. Such a restrictive approach to family planning may appear to condone social injustice, and for this reason some physicians are opposed to interruption of pregnancy for social reasons, as they do not wish thereby to condone the deficiencies of society.

Finally, any family planning programme is incomplete if it does not include facilities for examination and treatment of sterile couples. The psychological problems connected with infertility may endanger the stability of the couple and threaten the family's health. In such cases sterility control as well as adoption may be considered as measures to remedy a potentially pathogenic situation.

2 - *Obstacles to family planning* -

There may be factors which militate against the introduction of family planning activities. These may be of a social and economic nature, or they may be cultural and psychological.

2.1. - *Social and economic obstacles* - Big families are a problem when the parents do not have sufficient means to bring up their children. Otherwise, a large family gives security and affection. Responsibility is learned very early, and the older children look after their younger brothers and sisters, especially when the mother works ; the elder son assumes the protective rôle of the father. In agricultural areas, there are more hands to work in the fields. Descendants, especially if they are male, bring prestige to a family and ensure its continuity ; and the parents may legitimately count on their children taking care of them in their old age. All this represents tremendous emotional security for the members of the family.

2.2. - *Cultural and psychological obstacles* - In many cultures it is a source of pride for the father, and a proof of his virility, to have a large number of children. In the same way the wife is proud of her fertility. On the other hand, a woman who has few children or is infertile is likely to be despised, and may be subject to repudiation.

Religious beliefs may also be obstacles to the acceptance of some contraceptive methods, as may also be traditional attitudes.

Parents fear that their children may die of disease, leaving them alone and resourceless in their old age. As long as parents have no assurance that the children they already have will survive and be healthy they will be unwilling to contemplate family planning.

Finally, resistance may come from the fact that the women apply their own traditional methods, and they or their husbands refuse to accept the examinations and techniques connected with family planning, especially when these are carried out by male health personnel.

3 - *Family planning : how and for whom ?* -

We shall not attempt in these pages to go into the various techniques of birth control and birth spacing, or of sterility control ; these are described in detail elsewhere, and also in other chapters of this book.

It should however be emphasized that in view of the continuous progress being made in this field, it is essential for health workers to keep themselves constantly up-to-date with new methods. We would simply provide some indications of a general nature on the application of family planning at the level of the individual, the couple, and the group.

In the field of family health, planning of births is justified by its protection of the health of mothers and children already born and yet to be born, and by a judicious balance in the family, but not by general demographic considerations. It is however essential that family planning services should offer couples who come to them for advice education in sexual responsibility and not only in techniques. And if these services are offered only to couples, this does not solve the thorny problem of pregnancy in adolescents and unmarried women and girls. Since these services have no moral judgment to pass on the sexual behaviour of the users, they must be wide open without any reference to matrimonial situation ; but the educational aspect - non-moralizing education - is especially important for adolescents, with the aim of giving them a sense of sexual responsibility.

The benediciaries of family planning activities are of course all women of childbearing age, but some of them - who may be considered as belonging to high-risk groups or else target groups - obviously require special attention. These are :

- very young or older women, at both extremes of reproductive life ;
- mothers immediately after childbirth ;
- adolescents who are pregnant or already mothers ;
- young multiparous mothers ;
- women belonging to socially and economically underprivileged groups.

The list is not complete, and it is the responsibility of those in charge of maternal and child health or family health programmes to decide which women should receive priority attention and care.

Activities may be carried out on the individual level or within the framework of community programmes, depending largely not only on the means available but also on government policy on the subject. It is always preferable, however, not to develop family planning activities in isolation but within the framework of more general family and community health activities. A short chapter is devoted to this important problem (see Chapter X : Integration of Family Planning Activities in Basic Health Services with particular Reference to Maternal and Child Health - by M. Manciaux).

Any viable family planning programme must include both technical aspects and an educational component addressed also to husbands as far as possible. Very many projects have failed because they emphasized the technical side to the detriment of educational aspects, and overlooked the participation of the fathers.

4 - *Family planning : when ?* -

Family planning is considered to be an integral part of family health, and must fit into the reproductive cycle of the family. It must be introduced very early on the educational level (sex education in schools, including objective information on how to avoid unwanted pregnancies), and must be constantly repeated. In developing countries, where contact with the health services is infrequent, every opportunity needs to be taken to talk about family planning.

There are however particularly propitious moments to deliver the message : these are the times when a woman is most receptive to advice on this subject because she is pregnant, or has recently had a baby, or is breast-feeding, or is in a state of fatigue, or is sick. This is why the World Health Organization, for instance, places particular emphasis on post-partum family planning programmes. Integration of family planning activities in general maternal and child health programmes provides an ideal opportunity for seeking out and making the most of these periods of greatest receptivity. - We shall return to this subject.

In the same way, a sound knowledge of traditions and local customs, of the community, and of the families, enables workers to identify those persons who play a determining role in the acceptance or rejection of family planning. We shall also come back to this subject later, in connexion with health education.

Conclusion.

« The concept of limitation of the population rarely provides the individual with motivation for family planning and the health benefits of family planning should therefore be stressed. »(4) One of these benefits is undoubtedly a better quality of family life. Based on the health of each one of its members, and on internal dynamics which make for harmonious organization and functioning, family health is seen as an objective which can inspire viable health programmes, mobilize health workers at all levels, and obtain the widest acceptance from its beneficiaries. The concept thus defined deserves to become a fact.

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CHAPTER II

FACTORS INFLUENCING FAMILY HEALTH

SOCIO-ECONOMIC FACTORS AND CONDITIONS OF FAMILY LIFE

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We propose to study the way in which family structure is affected by socio-economic conditions. This is of course an enormous subject. In this chapter we can only deal with these relationships superficially, particularly since this document is intended for readers belonging to countries whose cultural conditions are very different from one another, whether it be basic family structure or the socio-economic factors which have influenced family structure in the past and which influence its changes and development today. Furthermore, in any given culture variations may be just as important as from one culture to another.

The examples that I shall give are meant to serve as models on which the reader can establish the different groups in his or her own society. None of my examples, and this was a deliberate decision on my part, applies exactly to another society, but I hope that my method of constructing them will help to distinguish significant differences between the social groups which make up a given society and their connexion with family planning.

My first examples concern the general characteristics of family systems. I shall take three examples drawn from entirely different societies. The first concerns an African Moslem society with a very simple agricultural economy and practically no industrialization. The second concerns a Western society, rural Ireland in the seventeenth century. The third concerns conditions in a society which is highly developed industrially and commercially in modern Western Europe. Through these examples I shall try to describe how family structure reflects very directly the economic, social and religious phenomena of the society in which it is placed.

The various components of a social structure are not elements that can be chosen at will by its inhabitants and be put together, any more than we can take various parts of different motor-cars to assemble them and make them into a system which works efficiently. Each component is related to every other component, by which it is supported and to which it gives support. There are however exceptions to this rule. In a society which is changing rapidly, and especially in a society which is strongly influenced by events external to itself, some of the components of this structure may change earlier and at a faster pace than other elements. This produces an imbalance between the different parts so that one institution may come into conflict with another, or else divisions may occur between different social groups. But my first example shows a balanced society.

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First example : a traditional African society with a basically agricultural economy.

In the comparatively isolated villages of rural Gambia, the « Mandinka » tribe lives almost entirely on an agricultural economy. The people produce only one crop that they can sell : ground-nuts, in exchange for which they obtain the money they need to buy the few manufactured items necessary for their very simple and very poor life. This crop is harvested by the men of the tribe, and is their only means of earning money with which they buy not only seeds for their own crops and those grown by their wives, but also cattle, kitchen utensils, and clothes for themselves and their wives. This is one of the factors which reflects and at the same time maintains the power of the men as the dominant sex in their society. Most of the women produce the food on which the family lives - millet and rice - and this is the food on which not only they, but also their children and their husbands, subsist. It is thus important for the husband and the whole family for a man to have several wives, and children old enough to produce food for the family. The women, therefore, are not only wives and mothers, but also make an economic contribution. It is also noteworthy that if the women do not give birth to children who survive long enough to become producers themselves they lose one of their chief rôles and consequently lose their status in society. It is interesting to note that in this society where divorce is frequent, the main reason for divorce is sterility in the woman. Sterile women are considered as abnormal, and feel abnormal themselves.

Child mortality is exceptionally high : about 40 per cent of children born alive die before the age of five, and this mortality does not include spontaneous abortions and stillbirths, whose number is very difficult to estimate because this society is largely illiterate. It can be estimated, however, that less than 40 per cent of all conceptions lead to the birth of a child who will live to be an adult. Due to a large number of infections, among which malaria is the most important, the mortality rate is very high each year. From time to time the villages are beset by particularly virulent infections which may kill a quarter of all the living children within the space of three months. Such an epidemic may be measles, but it may also be caused by another infection or an occasional famine. Such a society needs to have a marriage and family system which can quickly replace such serious losses. Every woman of reproductive age must therefore be able to procreate as long as possible, so she must be married very soon after puberty and remain married until the menopause. In societies which have such a high rate of child mortality, polygamy and early marriage are often found, since every woman must marry again as soon as she is divorced or becomes a widow. It does not matter whether all the men are married, or whether they marry early ; what matters is that the women - all the women - should be continuously in a position to procreate children.

However, if every woman gives birth to a child each year, and if all these children survive early infections, the effects will be unfortunate. Too large a number of young children are too great a burden on the nutritional capacity of the family. Each child would have to be taken away from the breast earlier than usual (mother's milk is a child's principal food for the first two years of life). And the mother herself would also find it difficult to carry out her important rôle of provider of food for the family. Here again, in such societies rules and customs are frequently adopted which slow down a woman's fertility rate as long as she has a very young child. Two customs which are interrelated are very frequent, and their combined effect is family planning and population control. Children are breast-fed for two years ; during the whole of this time the woman must not have sexual intercourse with her husband. This last rule is sometimes neglected, but if a child results from non-observance of the rule the couple is regarded with disapproval by society. When the child reaches the age of two, or if it dies before that, the rule is no longer applicable and the woman may become pregnant again. Thus if there is an epidemic and many young children die, a large number of children will be born the following year. These replace the children who were lost, and during the next two years the birth rate will probably be low.

This system does not always operate as purely and simply as I have just described. Local conditions of history, climate, variations in mortality rates, contact with other cultures, and human frailty give rise to many exceptions. What I have tried to do, however, in a simple and exaggerated form, is to show how behaviour related to marriage, to sexual intercourse, to fertility and to mortality is interrelated in a logical fashion (although the population may not be aware of this), and how each of these factors is affected by the economic background and the climatic and geographical context. If powdered milk is introduced for the children, an interrelated chain of events is broken. If children are saved from early death, the result is population pressure. This does not mean that this change should be avoided, but simply that we must study each society and be sure of the aim of our intervention, since change may introduce other innovations to produce a stable system.

I have just described a social system analysed by a sociologist. It seems to be logical in itself, and yet we know that it was not planned, that it was not created as such by its members, but that it has been modified, has undergone change, has met external forces, and has been changed several times during many years. Two interrelated questions arise : how was this form of society established, and how is it maintained if it is not a conscious system ?

First of all, it is a response coming from past centuries to a series of conditions and pressures, an adaptation without which the society could not have survived, either because the whole population would have died or become weakened and been absorbed into other systems, or else because it would have changed in such a way as to extend and adapt to new conditions. But if this is an unconscious phenomenon, how has it been maintained ? We have not yet a satisfactory answer to this question, but certain points are clear. This situation is only maintained because the members of the society regard their sexual behaviour and their fertility as either inevitable, desirable, or suitable. We shall return to this point later when we discuss the heterogeneous motivations of groups in modern society where uniformity is less insisted upon. However, in a stable traditional society, social behaviour associated with important institutions such as the family is maintained by several forces. First, it is maintained by the legal system which, in the society described, is constituted by the village elders, that is to say the old men who have lived thanks to this system and who now, through the family, the patriarchal system, and the links between productive family units, obtain from it at the same time power and subsistence in their old age.

Although the law be used to settle disputes related to marriage and divorce, and more especially land ownership, of women and children, it may also be very little used in traditional societies.

Common law for questions of behaviour and custom is often difficult to separate from religious rules which in a traditional society, and even to a considerable extent in many modern societies, regulate the basic institutions such as legitimacy, marriage, family relationships, and moral conduct generally. Although I am not an expert on Moslem religious law, I have the impression that, in general, it can be and is used to maintain the family and the marriage and fertility customs which I have mentioned earlier; for instance, it sanctifies the custom whereby all women must be married. It advises, or at least does not oppose, polygamous marriage, and so on. In a sense it is more important than common law because it is more concerned with moral behaviour and individual relationships which cannot always be submitted to legislation. Acts committed in private are not always known to the other members of society, but they are known to God and Allah and will be punished when the time comes. Such rules are particularly evident in the Jewish religion, and the Book of Leviticus is a guide to moral conduct in every detail of day-to-day life.

Finally, there is force of habit. In isolated cultures, especially in agricultural village societies, all the individuals in the community have had the same experiences in childhood and see only one acceptable model of moral conduct. What they see they consider to be the only way to behave, what exists is good and cannot be otherwise. The individuals who contravene this custom are stigmatized or punished by the community. There is thus pressure to conform to accepted custom, to conform to a way of thinking and acting. The conduct may be involuntary (female sterility for instance), but it is nevertheless stigmatized as being a bad example for others.

I shall not go into details of other societies. In my next example I shall simply emphasize the relationship that exists between habits of marriage and fertility and other economic and social institutions in a society, and stress what may happen when a change takes place in one part of the social system.

Second example : Rural Ireland in the seventeenth century.

In Ireland during the seventeenth century (and at one time or another this may have applied to most parts of agricultural Europe during the Middle Ages and the period that followed the Middle Ages), fertility in rural areas was controlled by a system of land ownership. Each family had its piece of land, which was generally small and could only maintain a small family owing to the agricultural methods of the time. The inheritance passed from father to son, not always but very often the eldest son. When the father decided to retire, he took a small room in the family house for himself and his wife and passed on the responsibility for the farm to the son they had chosen, who in return had to provide them with food and everything they needed for their livelihood. It was only then that the son was allowed to marry and have children. The other sons had either to live without children in the farm, or emigrate, or else marry the daughter of a farmer who had no sons. In this way the size of the family on each piece of land was limited, and this was necessary because uncontrolled fertility might give more children than the land could feed, the mortality rate being much lower than in rural societies in tropical areas.

Then a change came about : the potato was introduced, and if the land was used to grow potatoes, the crop could feed a much larger family. Little by little, the old system whereby each family farm remained intact was abandoned, and fathers parcelled out their land into several parts, each of which was inherited by a son. Each son was then allowed to marry and have children, and once more the property was subdivided.

Thus the population began to grow until the land, which was used exclusively to grow potatoes, became infertile. For several years the potatoes suffered from disease, and in the middle of the nineteenth century a series of famines set in which led to death and to a wave of migration. This situation only ended when the law was changed and the old system reintroduced. Still today the age of marriage in Ireland is very high, the average age in rural areas being nearly 30 for women. Migration of unmarried people is very common, as is absence of children. Celibacy, instead of being considered shameful, becomes a virtue. Once again the system was upheld by law, sanctified by religion, and aided by custom. For some years now this system has naturally been threatened by industrialization, and by the fact that living and working in towns puts less of a curb on marriage ; also, in spite of the failure of the old system, family planning is forbiden both by Church and State. Now that Ireland is entering a modern era, there will inevitably be a sudden and perhaps painful adjustment in its sexual habits and its fertility.

Third example : Industrialized modern Europe.

I am now going to discuss conditions as they exist in industrialized modern Europe. To begin with, I must draw your attention to several points which distinguish this society from the traditional rural societies I have just described. Three points are particularly important.

(a) Mortality rates are now very low, and the great majority of children live to be adults. Survival of the population of nations and of groups within a nation therefore no longer depends on a high mortality rate but on the inhabitants. It is also important to note that population growth, if it takes place, does not lead to lack of resources, famine, or death. Thus, two of the most important factors which influenced fertility and population change in traditional societies do not apply to modern industrial Europe.

It is however of fundamental importance to understand the mechanism whereby the low mortality rate and the comparative abundance of resources affect fertility. Couples do not have children for the welfare and strength of the nation : for a large part of the population, even in modern societies, couples do not decide to have children, the children arrive. They arrive as a result of spontaneous sexual acts, since sexual intercourse itself is the primary motive of the couple, and the possibility of conception, if it is thought of at all, is left to chance. In such social groups, having children is prevented either by postponing marriage, abstaining from sexual intercourse, or adopting a simple form of contraception such as « coïtus interruptus ».

If, however, couples are informed on the subject of fertilization and can direct it at will, their decision to become parents is based not on general considerations but on perception of their own personal situation. Again, the decision-making process is not necessarily deliberate or rational ; it may be influenced by many factors :

- hopes and ambitions for their own welfare, and the effect that one or several children will have on their standard of living. These hopes are not based on an absolute criterion, but on comparison with other individuals, other couples, or other groups with whom they would like to identify themselves.
- the ideas that they have about their future, their profession, their economic balance amd their plans. It is a historical fact, for instance, that during periods of severe economic depression couples tend to reduce the number of their children, and thus

the overall fertility rate drops. In this case, too, the primary consideration is not the financial state of the country, but concern for the career and wellbeing of the individual.

- customs related to the age of marriage, the interval between births, and the number of children considered desirable in their family and social environment. Wellbeing is a largely subjective concept which includes elements unrelated to economics together with measurable economic elements. The economist Werner Robinson, has said for example : « The desire to maintain your stock, the desire to have children to bury you and inherit your land, the joy of having children in the house and of seeing them grow up, are sentiments that are so widespread in all cultures that they cannot be summarily dismissed ». For the past twenty years I have been part of a team responsible for the supervision of maternal health in a town which, during this period, has reached the point of zero population growth, and I believe that this conception is a very accurate one.

In spite of demographic growth in Europe during the last century, and the fact that children are no longer necessary for survival of the nation, individuals, and perhaps more especially women, feel themselves to be under a number of moral and social pressures. Most women wish to marry, and think of it from childhood onwards. Many women, when they reach the conventional age for marriage, feel abnormal, isolated, or even stigmatized if they have no plans for marriage in view. The conventional age of marriage itself varies considerably with time, within any one society, for reasons which are not well understood but which are influenced by socio-economic factors. A fashion grows up in a given social environment, and women compare themselves with other women of their own age at the time they are living rather than with women of another period and another social environment, with whom they do not identify themselves. In addition, once married it is generally accepted that they will have children. Here again, couples feel isolated or abnormal if they do not have children, or if they put off having their first baby beyond what is considered to be the normal time-limit. Their friends have children, talk about their children, their social activities change and the circle they frequent is broken, they begin to feel different, not to have the same interests as their former friends. They are thus once more under social or even moral pressures, and risk being considered as selfish or materialistic.

Fashions and social pressures also exist with regard to family size. For many years, in Great Britain, it was considered that an only child was bound to have many problems. Arguments to prove whether this opinion is right or wrong are rare, but many parents believe that an only child will suffer from loneliness, spend too much time with grown-ups, and be selfish because he or she will have the parent's undivided attention. On the other hand, a large family will be considered abnormal in some social groups, as a sign of excessive sexual activity on the part of the parents, or of their inability to control their behaviour, or else of the little care they have for the welfare of the children they already have. Opinions on optimal family size vary from time to time and from one social group to another, but at any given time couples are aware - though sometimes vaguely - of the ideas and customs in favour in their group.

(b) Another important characteristic of industrial society, which differentiates it from others, is its heterogeneity. In a very simple society, all the children go through the same process of socialization. They may not have a formal system of education, but they learn from their playmates, their parents, and their family the desirable behaviour that should be adopted in the community, and usually there is only one accepted type of behaviour.

In industrial societies with their huge anonymous populations, society is made up of several groups which, although they are linked to form a whole, vary considerably in their way of living, their occupations, their careers, their riches, their ambitions, their living conditions and housing, their education, their roles and relationships with one another. We can classify these various groups in several different ways : those who live in towns, those who live in the country, those who have a high or a low standard of education, those whose incomes are high and stable, and those whose incomes are low and irregular. We may also distinguish them according to their general capacity for acting on their environment, or their feeling that it is their environment which directs or manipulates them ; in other words, they may be differentiated by the way they organize different sectors of their lives : not only the number of their children, but their work, their expenditure, and their future. As a rule, and for practical reasons. sociologists have divided up these categories according to social class or socio-economic position. We must nevertheless bear in mind that this method of dividing them into categories is the sociologist's approach and that the people themselves do not necessarily consider themselves in this way. It is a simple and abridged way of describing groups that are different in several ways, and there will also be many differences within each social class. To understand the attitudes of each social group, to understand how they are going to react to any specific campaign, it is important to know that each group is subject to different pressures, each group has a different perception of its own aspirations and its own ambitions, each group has different relationships with society in its widest sense, and different relationships within the family and within society. Each group is thus apt to react differently to a given event. I shall describe some of these groups later on and the factors which influence or determine their conduct.

(c) I should now like to draw an important distinction between traditional and industrialized societies. Traditional societies change, but unless it is under the force of external pressure they change slowly, and each generation is barely conscious of the change that has taken place. This is naturally no longer true now, because almost all traditional societies are transformed by contact with the powerful industrial world. In our own society, however, change is rapid and continuous. It is not imposed by society, but comes from technological change in which transformations are hoped for, wanted, and carried out by governments, industry, commerce, and groups which have special interests. To take a simple example, our system of education is aimed at instructing and giving people the knowledge needed to act in our complex world. It brings them up to date ; in other words, it gives them knowledge which has not been mastered by older generations, and it may even tell them clearly that they must do things differently from the way their parents did them. Inevitably this produces differences between the generations in attitudes and ways of behaving. Also, because their lives are different, there will be differences between generations within any one social class which in this era of particularly rapid change will bring about fundamental transformations in moral systems. Here are two examples of this :

- A hundred years ago or even earlier, in an era of comparatively simple technology, most aspects of moral and family life sprang from a series of religious and

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legal rules and customs which were imposed on the individuals who made up a society. The level of education was low or practically non-existent for most people. Industrialization called for an ever-increasing number of individuals who could read, and who were capable of making decisions on new problems requiring judgment and knowledge. For an increasingly large number of men, particularly, it became necessary not only to perform new tasks efficiently but to understand the general principles on which their occupations and even their social life were based. Thus the old methods were questioned, new principles were invented, and the fundamental old methods were destroyed and even made fun of. The following question may be asked : can men who are asked to apply new knowledge and new principles in one sector of their life continue to live without questioning the old principles in other sectors of their life ? Can individuals who have a thorough knowledge of new questions be asked to accept a way of thinking and a conduct of their private life which are contrary to their personal wellbeing as they now perceive it ? It would seem that such frontiers are no longer possible in practice. Thus questions begin to be asked about marriage : if a marriage is unhappy, does one have to continue to bear it ? If a larger number of children means privation, why should one have more children ? And more recently, if pregnancy can be avoided, why should people not have sexual intercourse outside marriage ? In a more general way, industrialization led to a higher level of education, and education led to making decisions on one's private life following a less strictly regulated moral code. Decisions concerning one's personal wellbeing were made consciously to replace the moral laws of the whole population.

- My second example concerns the status of women. In some societies a woman is regarded as property ; she may also be considered as an economic asset, as a producer. She had of course some customary rights, but essential decisions were made by men. In other societies or other social groups she was considered above all as a wife, as the one who brought children into the world, as a mother, and not as an ornament to be looked after carefully but who was even so an assistant to the man. The change which has come about in the status of women over the past century is obvious, but the reasons for it are still somewhat obscure. Intelligent, well brought-up children require educated mothers. In other words, industrialization may have affected woman's status even before she herself came to have an industrial value. Perhaps intelligent, educated men need educated and efficient women to run their social and domestic affairs for them. Freed from continuous responsibility and pregnancy, women themselves asked for new roles and began to exert their power. Industry and commerce called for new workers, and once again at increasingly high levels of education and skill. Each factor reinforced the one before and gave women greater political power. Only now do we see the culmination of these trends in the fact that women are claiming complete equality for themselves.

What I have just described is a general trend in Western industrialized societies. In such a society, however, as I said earlier :

1° - There are several separate social groups, each adjusting to change at different speeds. The trends I have described apply most strongly to the professional groups whose education is the most advanced. Such groups are informed, they have access to knowledge and power. The basis of their life is made up, not exclusively but to a very considerable extent, of principles which they themselves have developed to advance their own wellbeing. They have learned that every event has a cause and they know that if this cause can be found they will be able to change the course of events. They modify their own environment ; their professional life which was initially based on a very long training has a long-term aim and can be foreseeable ; it can no longer be said that they have a job, they have a career and their short-term action may be directed towards a distant ambition. In their family circle they may consider themselves as fathers, mothers or children and be a unit which is sufficient to itself ; as they are mobile they can go from one place to another in pursuit of their own careers. The family is less important in their lives than their friends, and their friends are probably chosen from their own social circle whereas their family may belong to a different social group. Even with these characteristics, in a changing society they must adjust their behaviour not only to their circle but also to a wider community of ideas. Basic institutions such as marriage, family, and sexual behaviour, are, as I mentioned earlier, upheld by legal and religious rules and customs, which are sometimes so deeply rooted that they can only change slowly. These groups, more than any others, are responsible for changes in the law and adjustments to customary and religious regulations. It is also these groups whose pressure leads to improvements in services in the other groups who will need these new services.

2° - Coexisting with such groups in modern society are other groups who have been used to living quite differently and whose ambitions are very limited. Once again, they may be described in a different way. The following description does not aim at any one group in particular, but seeks to be typical in many of its characteristics of a great variety of groups. I have tried to extract certain characteristics of population groups at the other extreme of the socio-economic scale, but there will obviously be variations in detail throughout the different societies.

The main characteristic, as seen by the sociologist, is the uncertainty of their life. Those of whom they are composed are paid by the hour or by the day. They may lose their work at the end of the week, their incomes are uncertain and do not necessarily depend on their efforts or their skill. They do not take part in the economic decisions which may affect their life, they do not have a career which rises progressively with age, but instead they are in small jobs and their salary potential may indeed decrease with age as their physical strength decreases. They have no material resources in reserve which might help them to weather temporary misfortunes, and their lives are thus at the mercy of events.

So much for their material living conditions. Corresponding to these aspects there is a series of attitudes, an orientation which comes both from their uncertainty about material things and their experience in their social group or sub-culture. Generally, they have not had a high level of education, nor have they had the opportunity to benefit fully from their school years. Formal education may be less important for them than their practical experience and their personal observations. Their lack of knowledge of a complex world means that they cannot understand the connexion between cause and effect in several aspects of their life, and they tend to attribute the phenomena and experiences of their life to chance - and chance cannot be guided. Like their job, they have a short-term vision of time and do not see any point un making long-term plans. This is naturally of the greatest importance in their attitudes towards marriage, pregnancy, and family planning. Their social environment is much more limited than that of their middle-class contemporaries. If they are mobile it is not because of a long-term plan for their career ; in practice they are more static, and many spend their whole life in the limited environment of a single village or a single urban district. Their friends are probably exclusively from their own family, partly because it is their family which gives them help in times of difficulty, and partly because their affective roles are more important for them. Whereas a middle-class man can identify with his colleagues and find great satisfaction in his work, the unskilled labourer takes no pleasure in his work and finds affective satisfaction in his family and in those who live with him.

Finding satisfaction in his environment, he probably has less reason to give favourable consideration to restriction of the family. For him, and even more for his wife, children provide social status and are the centre of their affective life.

All this is naturally an exaggerated description which applies in its entirety to very few people. The general principles underlying this analysis, however, may be applied to a larger section of our modern society. Between these two extreme groups, there are many intermediate stages of adjustment in varying degrees to modern technological society.

THE EFFECT OF FAMILY ORGANIZATION ON THE PSYCHOLOGICAL DEVELOPMENT OF THE CHILD

E.A. SAND*

The effect of the family environment on the child's development has always been considered to be fundamental. Studies on children completely deprived of this environment go back a long way, and show how serious the consequences of such deprivation often are ; but these are extreme cases.

It is important to base our thinking on scientific information. A considerable amount of research has been carried out in this field, but much of it cannot stand up to the objections of the epidemiologist who knows his subject. It is true that a large number of variables are involved, and that it is especially difficult to draw up plans for research in this field. This is particularly true because certain effects that one attempts to bring out remain latent and often only become apparent after a prolonged period - hence the necessity for longitudinal studies.

It is proposed to discuss the following points :

- general aspects of the organization of the family cell,
- wanted and unwanted children,
- the working mother,
- social and cultural aspects,
- the early months of life,
- learning to speak,
- learning bladder control,
- Oedipus conflict,
- problems of school adjustment,
- neurotic tendencies,
- aggressive behaviour.

1 - *General aspects of the organization of the family cell* -

1.1. *Influence on possible delinquent activities*. Glueck and Glueck have demonstrated a statistical link between the delinquent activities of children (boys) and family living conditions. e.g. a high prevalence of delinquency is associated with :

- overpopulation within the family,
- poor state of cleanliness in the house,
- illegitimate income,
- absence of one or both parents,
- poor marital relationships.

(Unsatisfactory school performance more frequent in such children).

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1.2. It is noteworthy that the *divorce rate* in France and in Belgium has increased from one or two per cent at the beginning of the century to about 10 per cent at the present time. In the clinical evaluation of the psychological problems of the child connected with divorce of the parents, it is striking how great a variety of possible effects there is. This seems to be connected with the parents' attitude to their children independently of the marital problem itself. Children who are used as «pawns» in the conflict between the parents suffer more than those who are excluded from the conflict (clinical studies). Here the personality of the parents is of capital importance.

1.3. «Hereditary» nature of certain marital problems. Information on divorce rates needs to be completed with data on disorganized or disrupted homes, the death of one of the parents, their living apart, etc. A study at present being carried out by the School of Public Health in Brussels shows that approximately twenty per cent of rural or urban homes are in this position. Here again, it is a question of open - or to some extent concrete - disunity.

Furthermore, there is no doubt that quite a lot of homes are in a state of incipient disunity. Some studies, particularly in the German Federal Republic, would appear to indicate that about twenty per cent of families are in this position. It is not too far-fetched to conjecture that at least one third of all marriages end in open failure (divorce 10 per cent, separation 10 per cent, incipient disunity 10-15 per cent). This problem is difficult to analyse, and preventive measures which could be applied are remote, to say the least.

It is of interest to note that some research appears to indicate that a child brought up in unfavourable conditions of this kind is likely to reproduce conditions liable to bring about such failures in his or her own home. Studies by Terman, Burgess and Cottrell (1938-1939) do in fact show that the probability of success in marriage is commensurately higher if on the one hand the emotional relationships between the parents and their own parents were good, and on the other if a good relationship has been maintained between the young parents and their own families.

More up-to-date results of rigorous sociological research on this problem are not yet available ; it must indeed be remembered how extremely difficult it is to carry out such research.

1.4. Number of children living in the home. Various studies indicate that there is a significant link between the intellectual level of the children and the number of children living in the home. The higher this number is, the more it would seem that the child is under a handicap in developing his or her intellectual powers. We have been able to show a significant difference from this point of view between only children and children with brothers and sisters (Study on the Growth of the Normal Child, Brussels, 1966).

In Italy, Migliorino examined 4000 primary school children in Palermo, and showed that on an average the best results are achieved by children from families of four persons (two parents and two children).

Some studies would seem to indicate that the position of the only child in the family and in society is unfavourable to his or her later adjustment to social life. However, for the present at least, these studies are open to serious criticism of the reliability of the research methods used.

2 - *Wanted and unwanted children* -

The organization of the family and the relationships between its different members - parents and children - are certainly profoundly influenced by whether or not each member has his or her appointed place in the cell, and particularly whether or not the birth of the children was planned.

Studies have been made in Sweden on children born after a request for abortion by a pregnant woman had been turned down by the authorities. The psychological and social development of such children in the poorly organized context of a family which offers no security seems to be very much less satisfactory than that of a control group in a parallel study (psychiatric problems, anti-social behaviour, lower level of scholastic performance, etc.). There is certainly no doubt that judicious and timely family planning would have prevented the mothers studied in Sweden from finding themselves, together with their children, in a difficult position (Höök, Forssman and Thuwe).

In the context of the International Growth Studies coordinated by the International Children's Centre, we have been able to demonstrate that children described as «unwanted» by their mothers shortly after birth have certain characteristics, and particularly the following : they are breast-fed for a shorter period than «wanted» children, they are weaned more abruptly, they are subjected to physical punishment more frequently, they have mothers who are more openly aggressive, they more often have feeding problems and fits of rage, etc.

It should also be noted that children who are not the firstborn are more often unwanted than the firstborn. In fact, the higher the rank of the child, the less it corresponds to a planned birth (Sand, Emery).

3 - *The working mother* -

Very many studies have been made on this problem. The findings are contradictory, but the impression remains that the effects of the mother's professional activity are conditioned by a considerable number of subsidiary variables : the age of the child, the type of professional activity, marital harmony, area, etc.

Nevertheless it would seem possible, from an extensive analysis of the literature devoted to this subject, particularly by Siegel and Haas, to draw a certain number of interesting conclusions. The main point would seem to be not just the fact that the mother works, but rather the importance she attaches to her work. If the mother is happy to work outside the home - or not to work, as the case may be - the child will not suffer. If on the other hand the mother's professional activity is not to her liking, or if she spends her time in domestic tasks which she does not enjoy - in brief, if she is not content with the organization of her daily life, the child is likely to suffer too.

4 - *Social and cultural aspects* -

It is obvious that the family environment always fits into a definite cultural context. The effects of this context are undoubtedly of the greatest importance. Many authors, especially Erikson, have given examples of this. A number of interesting point may be emphasized here. We find an association between a clear and precise definition of the social rôle played by the child - such as domestic tasks, or being taught to hunt - and a

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lower prevalence (frequency) of psychological maladjustment (Erikson). By extrapolation this point applies more especially to the present-day industrialized society of the West. There is no doubt that real social functions (work, independence) devolving on adolescents particularly are less and less clearly defined - and this is a prudent euphemism - while at the same time there is a growing malaise among many adolescents, especially in middle-class and well-off sections of society.

The effect of education in large groups (communities of young couples with children, kibbutzim, for example) should also be noted. Scientific studies on this subject are rare, however, especially as regards community living. It may be assumed that the effects of frequent and varied social contacts are beneficial to the extent that a special link is preserved between the child and his or her own parents.

5 - *The early months of life* -

The influence of the family environment makes itself felt as soon as the child is conceived, if not before. Certain studies have shown that there is a definite correlation between the characteristics of a «wanted» child and certain behavioural patterns of the mother (breast-feeding, aggressive attitudes) and of the child (fits of rage, etc.) (Sand, 1966).

The importance of the physical presence of the mother in early childhood has been emphasized by many authors (Spitz, Bowlby). The observation of certain animal species shows the importance of physical contact and of «mothering».

The beneficial effects of close physical contact between mother and baby are fully accepted nowadays. Breast-feeding by the mother offers an excellent opportunity to establish such contacts, though the fact that breast-feeding is becoming less and less common means that this contact is increasingly problematic. It should be noted that artificial feeding also offers similar contacts, although these are less close, and it is essential that in no circumstances should artificial feeding be used as an excuse to entrust the baby to someone else to feed, at least as far as this is possible.

6 - *Learning to speak* -

The importance of speech has been highlighted by many research studies. Psychoanalysts have emphasized the relational aspect of this means of communication, and Piaget has demonstrated particularly the role of speech in building up cognitive development.

We would simply draw attention here to the tremendous difference between the wealth of information provided through this means to children of well-off and cultured strata of society, as compared with the poor or even complete lack of transference of knowledge from which children of socially underprivileged families frequently suffer (studies being carried out at the University of Aberdeen : Illsley, Wootton).

The results of these findings, and information on experiments at present being carried out in a number of negro districts of Milwaukee (Wisconsin), point to the responsibility of the community towards these underprivileged children, whose intellectual development might benefit from early psycho-social and educational help (Heber, Garber).

7 - *Learning bladder control* -

A number of studies emphasize the connexion between certain maternal attitudes (frigidity, obsessional tendencies) and prolonged enuresis in the child (Crosby, Sears, Maccoby and Levin, Lovibond). We have been able to show that by the age of three about fifty per cent of children didn't control their miction during the night. By the age of six this rate falls to ten per cent, and from then on it decreases slowly (Sand). Our studies, and those of Klackenberg in Sweden, tend to indicate that the best way of avoiding difficulties of this nature is to leave children quietly to follow their own physiological rhythm in this field and not hasten unduly a stage in their upbringing which will be reached without problems in the normal course of events.

8 - *The Oedipus conflict* -

According to the ideas put forward by Freud, it should be remembered that this is a normal conflict which every child faces about the age of three, and which he or she must overcome. A boy is emotionally attached to his mother, and seems to have «ambivalent» feelings towards his father - that is, he continues to love him but at the same time sees him as a strong and victorious rival and an object of hostility and fear.

Experience in child psychiatry clinics bears out these theories. Furthermore, the difficulties in resolving the Oedipus conflict when the parents (father and/or mother) have psychological problems need to be emphasized.

The absence of one of the parents also makes the child's task very much more difficult, since he or she may not be able to become «detached» so easily from a parent of the opposite sex for want of a model of the same sex with whom to identify and to resemble. It is known that solution of the Oedipus conflict corresponds with a mechanism of identification by the child with the parent of the same sex.

9 - *Problems of school adjustment* -

Successful scholastic performance is of course connected above all with the child's intellectual capacity, and this in turn is clearly linked with the social level of the family (Sand, Schreider). The number of children in a family is also a factor of some importance. Only children seem to have a better opportunity to develop than children of larger families (Sand, 1966).

Furthermore, difficulties in adjusting to school work for emotional reasons are also conditioned by the family. Indeed we shall see that clinical experience tends to indicate that neurotic disorders in children are more frequent in problem families.

Various studies carried out, particularly in Germany, show that adequate preparation of children to achieve self-sufficiency is associated with good adjustment to school work. Further, these studies show that children need to be in quiet and orderly surroundings and to have real «moral support» from their parents it they are to do their school homework properly. Parents must in fact respect their children's homework, which is frequently not given the importance it deserves, especially in families of a low educational level.

The ability to adjust to school work is obviously only one aspect of a child's personality, and his or her personality as a whole is greatly influenced by the home atmosphere. In this field a great deal of clinical information has been found in support of Freudian theories ; the phenomenon is also highlighted in transcultural studies.

Finally, there is a need to launch coordinated studies on the problems connected with adjustment to school work. Such studies should take into account variables related to the child's personality, as well as to the home (or institutional) and school environments. This last point is particularly important, but is rarely studied : its analysis should include educational methods, school organization, the personality of the teaching staff, etc.

It is obviously difficult to make a distinction between the effect of family organization on school adjustment itself and on intellectual development. Studies made in the school environment have, however, shown clearly that the presence of a large number of children in a family is often a serious obstacle to educational achievement. This phenomenon is linked with the educational level of the parents, and housing conditions, more especially whether or not there is a quiet place away from the rest of the family where the children can do their homework (Sand, 1975).

It is important to emphasize the possible social importance of certain handicaps in schooling which, even if they are not very pronounced, may lead a child towards quite different scholastic careers. The influence of family organization thus goes beyond adjustment to school work in itself.

The lesson to be drawn from these studies is that the future professional level, and the future social and economic level, of the children is conditioned at an early stage by the various forms of family organization which we have considered.

10 - *Neurotic tendencies* -

It should be noted in the first place that, according to the experience of child psychiatrists, faint signs of neurosis which occur momentarily at the period of «latency» in a child's life (that is, roughly the period of attendance at primary school) correspond to normal defence mechanisms. At this time, a child may show signs of certain rituals and phobias, as at earlier age levels. Early school phobias of short duration are frequent, and a good sign. On the other hand, serious school phobias which appear later on, around puberty, are not such a good sign and call for a detailed psychiatric examination.

Furthermore, high prevalence rates of neurotic symptoms are found among certain population groups (Tsung-yi Lin, 1962). These rates may be as high as ten, twenty, or even thirty-three per cent, according to certain authors quoted by Tsung-yi Lin. However, no association has yet been clearly demonstrated between specific neurotic tendencies in parents and those of children in the same families.

Nevertheless clinical experience shows that it is unusual to find strong neurotic tendencies in children whose parents have no such symptoms, or show no sign of marital problems, etc.

11 - *Aggressive behaviour* -

This is an important sociological problem, particularly among young people. The origins of aggressive behaviour are many and varied. Family environment appears to play an important role in this field. The rôle of family organization has been mentioned earlier (cf. Glueck).

Various studies have been devoted to parental attitudes and their influence on the child. Sears et al. have shown that aggressive behaviour is often to be observed in children whose mothers have the following characteristics :

- a high anxiety level,
- a low opinion of themselves,
- discontent with their position in life,
- a poor regard for their husband,
- disagreement between the parents on educational problems,
- lack of affection in the mother.

Other authors have analysed the influence of the father's behaviour on the child, more particularly the implicit encouragement of aggressive tendencies, associated with bonds of dependency between children and parents (Bandura, Eron). It would indeed seem that aggressive behaviour in the father is often simply taken by the child as a model to be copied.

One last point is worth mentioning. Any aggressive relationship represents a dialogue between at least two people, of whom one plays the rôle of aggressor and the other of victim. Patterson has shown the importance of the victim's behaviour, which to a certain extent actually incites the other to aggressive action. This may happen in some families where one child systematically adopts an aggressive attitude while another plays the role of victim. However, these rôles are not always of a permanent nature.

Finally, it should be noted that aggressive tendencies are characterized by their stability over a period of time. Children who are already aggressive at the age of three or four are more liable to remain aggressive in later years (Bronson, Sand).

Conclusion

It is important to bear in mind that many of the variables analysed are not found in isolation. Furthermore, the influence of one of the members of the family - whether the father or the mother - may be modified by other members of the family or else by people outside the family (in the school environment, the children's playmates, or in a Church community, etc.).

It would be unwise to extrapolate the observations made in the studies mentioned above, or to generalize from them without due care. The educational implications of some of these studies should not be overlooked, however. Any means of prevention, for instance as regards aggressive behaviour, should find practical application as far as is humanly possible.

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RELATIONSHIPS BETWEEN THE COMPOSITION OF THE FAMILY AND MATERNAL HEALTH*

P.O. HUBINONT

The dimension of the family, rather than its composition and spacing, is one of the main factors responsible for impairing family health.

There is in fact a mathematical relationship between the dimension of the family and birth spacing, that results in a subtle distinction and makes comparisons valid between groups of multiparous women who have had the same number of children either in rapid succession or with «suitable» spacing. Indeed, the second group will be less fertile than the first for a variety of reasons, and may easily belong to different cultural, social and economic groups.

There is a direct relationship between maternal health and family health, at least where traditional family patterns prevail and where the mother, in addition to her social function, also has the functions of life-giver, wife (on both the sexual and the relational planes, which go together), parent and housewife.

Maternal health has a direct relationship with the development of pregnancy. It influences the latter, and is influenced by it, not only at the time but also later on.

We have some fragmentary data on events affecting health according to the number of pregnancies. In table 1, taken from Working Paper no 5 of the International Planned Parenthood Federation (IPPF) : «The relationship between family size and maternal and child health», we find a striking demonstration of the combined rôle of multiparity and age of maternal mortality.

Table 1 : **Maternal deaths by age and parity in 348,393 live births: U.S.A., 1951–1961**

	Deaths per 10,000 births
All Mothers	8·7
Under 20: total for age group	5·1
No previous births	4·4
1–3	5·2
4 and more	—
20–29: total for age group	6·6
No previous births	4·1
1–3	5·4
4 and more	13·2
30–39: total for age group	13·8
No previous births	12·2
1–3	11·5
4 and more	17·8
40 and over: total for age group	34·3
No previous births	61·4
1–3	20·0
4 and more	44·1

Source: Jaffe and Polgar (1964).

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* The data given in the following pages are not exhaustive, and have been chosen rather as examples. They were presented at the course on Family Health and Family Planning in 1973.

Independently of these statistics, we have not found in our hospital, from 9,195 files analysed, a comparable increase in maternal mortality under the influence of the factors of multiparity and age, but this involves a concept which is well known : the rôle of prenatal preventive care and high quality obstetrics.

Table 2 (Wauters 1968)

	Parity 1 and 2		Parity 5 and more	
	Number	°/oo	Number	°/oo
Number of files	5,531	-	1,341	-
Maternal deaths	3	0,54	1	0,76

In the field of maternal morbidity : Apart from the epidemiologic relationship between repeated pregnancies and cancer of the cervix, cardiovascular diseases, and especially essential hypertension, as well as other associations which are more or less clear, there is a series of fields in which pregnancy always plays a determining rôle in the origin, appearance, or aggravation of general diseases, without counting obstetrical complications.

IPPF Working Paper no 5 mentions a study later reported by the Population council (Bulletin of Demography and Family Planning, no 9, page 26, April 1972) ; Figure 1, which is taken from it, shows clearly the influence of parity on the passage from latent to clinical diabetes mellitus.

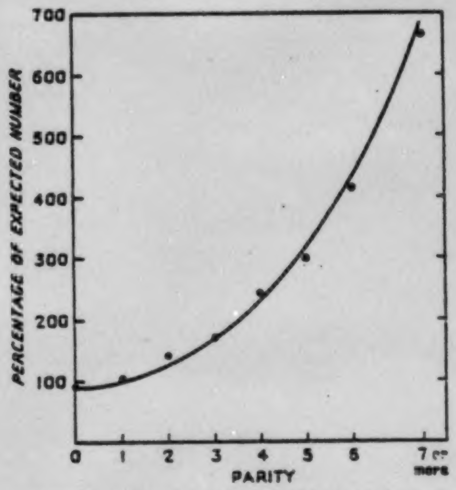

Fig. 1 —Increase of incidence of diabetes with parity in women aged 45 or more. (Source : Pyke (1956))

Our experience (Wauters, 1968) corroborates these concepts, as well as the concept that anaemia in pregnancy is aggravated by repeated pregnancies (table 3).

It should be noted that trustworthy authors such as Dugald Baird (1969) and Allan Guttmacher (1967) have shown the prevalence of haemorrhages and anaemia as causes of maternal mortality.

If we consider medical complications, more particularly of an obstetrical nature, as they are presented in the document taken from Wauters' study (table 3), we see the increase in abnormal presentations and obstetrical procedures, and the increase in disorders connected with the placenta (low insertion, disorders of placenta birth, etc.).

Table 3 - Influence of multiparity on maternal health - from the obstetrical point of view (Wauters, 1968)
Analysis of 9,195 files - Brussels 1961-1965

	Parity 1 & 2 : 5,531		Parity 5 & + : 1,341		X_2
	N	°/oo	N	°/oo	
Anaemia	55	9.44	30	22.80	2.41
Diabetes mellitus	11	1.99	7	5.33	2.68
Transverse presentation	13	2.35	15	11.42	4.86
Face presentation	14	2.53	8	6.09	2.41
Internal version	5	0.90	8	6.09	6.77
Full breech extraction	16	2.89	15	11.42	3.95
Placenta praevia	31	5.60	19	14.46	2.58
Haemorrhage	117	20.25	44	33.49	1.65
Manual placenta birth	223	40.32	71	54.03	1.34
Caesarotomy	86	15.54	32	24.30	1.56

In much less satisfactory working conditions, Akasheh's statistics are worth looking at (table 4).

Table 4 Obstetrical accidents : Jordan (Amman) - (Akasheh, 1967)

(a) Uterine rupture

Parity	Uterine rupture		Foetal death		Maternal death	
	N	°/o	N	°/o	N	°/o
1-2	3	5.7	3	100	-	-
3-5	19	35.8	19	100	10	18.8
>6	31	58.5	31	100	22	41.5

(b) Postpartum haemorrhage

Parity	Uterine atony		Placental retention	
	N	°/o	N	°/o
1	14	11.6	35	21.0
2-5	50	41.3	79	47.3
>6	57	47.1	53	31.7

(c) Placenta praevia

Parity	Placenta praevia		Still birth rate	
	N	°/o	N	°/o
1	2	2.7	2	100
2-5	37	46.7	10	27.0
>6	40	50.6	13	32.5

Snoeck (1961) had already drawn attention to a very serious complication of multiparity and of pregnancy coming late in a woman's life : that is, the incidence of abortion (table 5). This is recognized nowadays as one of the health hazards most frequently associated with multiparity.

Table 5 - Distribution of abortions according to marital status, age and gravidity (1000 consecutive cases)

Age group	Unmarried	Married N	Married °/₀	Total
Under 20 years	39	28	41.8	67
21 - 25	93	221	70.4	314
26 - 30	78	229	74.6	307
> 30	88	224	71.8	312

Gravidity	N	°/₀	Frequency
1	235	23.8	49.2
2	325	32.9	30.5
3	234	23.7	12.1
4	90	9.1	5.5
5 & +	105	10.6	2.7
	989	100.1	

Age group	Married	Number of abortions in 3 gravidities and over
21-25	221	14
26-30	229	66
30 & +	224	83

There is certainly a relationship between family size and the psycho-social maturing of children who, it must not be forgotten, will in their turn become parents. There is also a relationship between the composition of the family and the mental health of the parents, but there are few significant studies in this field.

A primary factor which plays an important rôle in some cultures is harmony between the partners.

S. Duret-Cosyns (1972) has made the following observations in 125 adults with psycho-sexual disorders :

- 30 cases of male impotence :
    - 1.3 per cent «normal» family antecedents
    - 40. per cent mother absent or rejecting her children
    - 53. per cent father absent or rejecting his children
    - 20. per cent parents separated since early childhood
    - 33. per cent partners in conflict.

- 54 cas of female frigidity :
    - 37. per cent parents divorced or mother unmarried
    - 18. per cent conflict between parents based on infidelity or absence of one of the partners
    - 17. per cent early death of one of the parents
    - 15. per cent lack of harmony between the parents
    - 15. per cent parental couple described as «perfect».

- 41 cases of marital discord :
    - 61. per cent children of divorced or separated parents
    - 25. per cent lacked affection from parents
    - 14. per cent happy childhood with balanced parents.

This author emphasizes the fact that : «early maternal deficiency may have a very serious effect on the psychological development of the child ; it may lead to difficulties in making social contacts, and more especially sexual contacts, for the rest of his or her life».

This has only an indirect connexion with the subject of this paper, but it draws attention to the fact that the psycho-affective life in relation to sexuality and reproduction is transgenerational, and that family health - particularly where the mother is concerned - has ontological and genetic aspects which are of interest to us today.

Pregnancy and childbirth are considered as natural phenomena, and the aspects which go with them are also considered as natural, whereas they may in reality be the source of anxiety and illness. In other words, since it is extremely rare for an individual to reach reproductive age without having been through emotional conflict, it may be said that the beginning of each pregnancy is experienced with a certain ambivalence from which the future mother emerges with happiness or difficulty to a greater or a lesser extent. Independently, therefore, of the psycho-sexual factors involved, present-day knowledge of the rôle of psycho-affective and social factors in the development of mental disease, whether psychotic or neurotic, is sufficient explanation that the experience of pregnancy constitutes a further ordeal and a challenge which may play a very important rôle in their exacerbation.

CHAPTER III

CONTROL OF HUMAN REPRODUCTION

REPRODUCTIVE PHYSIOLOGY

CONTRACEPTION

VOLUNTARY TERMINATION OF PREGNANCY

THE ELEMENTS OF REPRODUCTIVE PHYSIOLOGY

J. COHEN *

Life is a continuing process.

Reproduction is the function by which living beings produce other living beings of the same kind as themselves.

In the human species, reproduction is sexualized ; for each of the male and female individuals it requires the production of gametes, followed by the fertilization of the female gamete by the male gamete, thus enabling an egg to be created and become a future new individual.

1 - *Gametogenesis* -

1.1. - *The genital glands* -

1.1.1. Embryology : Both the testicle and the ovary originate in the pelvic region, in front of the mesonephros, and appear as an undifferentiated genital gland, to which are joined the beginnings of the evacuating canals, either male (Wolff canals) or female (Müller canals).

Both the undifferentiated genital gland and the excretory ducts develop under the influence of a specific substance, whose nature is unknown, but which is apparently different from adult testicular secretion. Testicular development of the gonad is induced by the presence of the Y chromosome. Its anlage is at the end of its passage through the pelvic region, in front of the mesonephros. It has two basic constituents :

- the gonocytes, from which is derived the germ cell line, the constituents of the gametes ;
- the mesoblastic elements, from which are derived the other constituents of the sex glands.

The thickened coelomic epithelium is known as the gonadal ridge. It has the same appearance in both sexes.

About the 37th day of embryonic life, the sex cords appear below the genital ridge, which has an irregular base ; these will become the seminiferous tubules in the male embryo. About the 40th day, well developed sex cords can be seen, packed closely together and perpendicular to the genital ridge. It is important to note that this stage of the undifferentiated genital gland is identical in both sexes. Induced by an X·Y association, development stops at this stage, and this explains why the spermatozoa are evacuated by excretory ducts coming from inside the gland. Induced by an X X association, the same gland develops differently ; the first sex cords become atrophied and a second growth of sex cords is observed, which contains the gonocytes, or future eggs. Because of the central atrophy of the genital gland the oogonia are forced to evacuate through the surface and not through a central duct.

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1.1.2. The testicle : This is made up of a multitude of seminiferous tubules embedded in an interstitial tissue containing Leydig cells which produce male hormones. The seminiferous tubules produce male gametes or spermatozoa.

The seminiferous tubules, whose diameter varies between 0.1 and 0.2mm, have an outer surface consisting of a membrane which is clearly visible in light microscopy. Inside, the tubules contain two types of elements : Sertoli cells, separated from one another by a mass of germ cells which are the future spermatozoa. The germ cells are in a constant state of transformation. The most mature elements are those closest to the lumen of the seminiferous tubules, but they do not progress vertically ; they make a very wide curve around the axis of the tubule - this is the spermatogenetic wave or Clermont spiral. Distinct groups of cells at the same stage of development are distributed regularly all round the tubule. From the spermatogonia which are nearest to the outside to the spermatozoa in the lumen of the tubule, there are two successive phases :

- a meiotic phase (chromosome reduction) which results in spermatids ;
- a phase of cytoplasmic transformation which results in spermatozoa.

The successive stages are :

. spermatogonia
. primary spermatocytes
. secondary spermatocytes
. spermatids
. mature spermatozoa.

When the spermatozoa leave the seminiferous epithelium in which they are formed, they follow the excretory ducts coming out of the testicles, which consist of :

- the tubuli recti
- the rete testis
- the efferent ducts
- the vas deferens
- the seminal vesicles
- the ejaculatory ducts.

1.1.3. The ovary : At the end of the first month of the human egg's development, the primordial germ cells produce oogonia in the developing ovaries. The oogonia multiply and become primordial oocytes between the fourth and seventh months. At the end of this stage of multiplication a stock of a million or more oocytes has been built up, each in a primordial follicle. As soon as they are formed, the oocytes start dividing. At the birth of the individual, some of the oocytes begin the growth phase. This is very long, and is only completed when the follicle is mature. The follicles develop independently of one another, and twenty or thirty years may elapse between the maturation of one oocyte and that of the next. They grow by increase in size, cytological change in the oocyte, and multiplication of the follicle cells. Small masses of liquor folliculi appear, around which the cells form a Call Exner rosetta. These drops of liquid become confluent to form the antrum. The oocyte occupies a position at one side of the follicles, is surrounded by a translucent membrane, and begins its meiosis. This is the primordial follicle which measures about 200μ; an ovary contains an average of 400,000.

Between birth and puberty the primordial follicles, as well as the oocytes contained in them, regress considerably. At the end of foetal life and during childhood a certain number of follicles are observed which develop to the cavitary stage, but they never achieve complete maturation and rapidly involute. After puberty the phenomena of maturation begin : only about 300-400 follicles achieve ovulation between puberty and the menopause, but during each menstrual cycle several follicles start growing at the same time. Each month between puberty and the menopause, in a follicle which has reached maturity the oocyte completes its first meiotic division, extrudes the first polar body, and embarks on its second meiotic division. When it is expelled from the ovary the oocyte is blocked at Metaphase II stage.

1.2. - Hypothalamic and hypophysial control - The testicle and the ovary are both controlled by hormones secreted by the hypophysis, or pituitary gland. This gland is small in size and weighs about 600 mg in the adult ; it is suspended at the base of the brain by a thin stem. This stem is important, since the functional capacity of the hypophysis depends on its being intact. The hypophysis is lodged in the sella turcica and is one of the best protected and most inaccessible organs in the body. The role of the hypophysis has been mentioned since 1909 by Cushing and Aschner who observed sexual regression in animals following hypophysectomy. In 1926, Ascheim and Zondek brought on puberty in prepubertal female rats and mice by implantation of hypophysis.

The hypophysis secretes FSH-LH gonadotrophins :

- FSH (follicle-stimulating hormone). In the human male, spermatogenesis is under the control of FSH. Its absence causes involution of the seminiferous tubules. Its presence is essential for spermatogenesis and especially for achievement of meiosis. In the human female, FSH induces maturation of the egg with increase of mitosis in the granulosa cells. FSH is responsible for follicle maturation.
- LH (luteinising hormone). In the human male, LH controls the Leydig cells. It is necessary to the differentiation of the interstitial tissue, to maintaining activity of the Leydig cells, and to secretion of testesterone. In the human female, LH ensures production of oestrogens by the thecal cells of the pre-ovulatory follicle. The discharge of LH sets ovulation in motion. Later, LH ensures production of oestrogens by the theca interna cells of the corpus luteum, and of progesterone by the luteinised granulosa cells.

The hypophysis itself, however, is under the control of the hypothalamus which is responsible for its regulation. The hypothalamus itself is sensitive to the sex hormones which regulate the secretions of releasing-hormones. Indeed, within the hypothalamus various centres grouping neuro-hormonal cells have been described : one posterior, known as tonic, the other anterior preoptic which elaborates specific hormonal principles called releasing-factors. These are conveyed by axoplasmic transport to the hypophysial portal system where a second regulation, quicker and more refined, brings chemical mediators into action, including acetylcholin and serotonin. The hypothalamus controls the hypophysial gonadotrophic function, and it is essential to the reproductive function that it be intact.

1.3. - *Spermatogenesis* -

The spermatids formed after the reductional divisions undergo the original transformations which lead to the spermatozoa : formation of the acrosome and differentiation of the flagellum. The Sertoli cells edge the seminiferous tubule and ensure transit of the necessary elements towards the spermatocytes and spermatids which occupy a more central position in the tubule.

The duration of the spermatogenetic cycle has been estimated at 74 days.

The transformation of a spermatogonium into four spermatocytes takes approximately 27 days. Cell multiplication and differentiation takes place in such a way that sixteen spermatozoa are derived from one spermatogonium.

A series of six cell associations can be noted which, when they have completely succeeded one another at a given point in the seminiferous tubule, constitutes a cycle of the seminiferous epithelium. This cycle lasts approximately sixteen days. Afterwards the spermatozoa are liberated into the lumen of the seminiferous tubules. Spermatogenesis is under the control of gonadotrophic hormones ; it is set in motion and maintained under the control of FSH. The secretion of androgens by the Leydig cells of the testicles is essential to the maintenance of spermatogenesis. The testicle normally secretes a small amount of oestrogens which intervene in the control of gonadotrophic secretions.

The Sertoli cells may represent the last point of impact of the gonadotrophic and sex hormones, and the products of their secretion set in motion the spermatogenetic cycle and ensure its maintenance. The Sertoli cells are thought to be under the control of LH.

1.4. - *Oogenesis* -

The formation of the female gamete or egg is subject to a cycle of production, and is not continuous and permanent as in the male. The menstrual cycle is characterized by the growth of a follicle, followed by ovulation and then the transformation of the walls of the follicle into the corpus luteum. If fertilization does not take place, a new menstrual cycle then begins.

The cycle begins with the growth of a primordial follicle. The size of the follicle increases tenfold : the antrum grows larger and the granulosa cells proliferate and form four or five layers. The follicle becomes surrounded by a Slavjanski membrane around which the ovarian connective tissue forms a capsule or theca, divided into two layers : theca interna and theca externa. During this phase the follicle secretes increasing quantities of oestrogens.

These changes take place under the influence of FSH. Several follicles develop at the same time according to this pattern, but only one reaches maturity. The other follicles which had reached a certain stage of development do not reach maturity but suffer atresion. In this case the egg degenerates, but the cells of the theca interna of these follicles secrete oestrogens which are added to those of the mature follicle. The mature follicle, some 24 hours before ovulation, shows as a cyst-like protrusion about the size of a cherry causing a lump of about 12-15 mm on the surface of the ovary.

The follicle ruptures at the level of the stigma under the influence of secretion of LH. The follicular fluid surges out, taking the oocyte with it. The latter is surrounded by peri-oocytory cells (the cumulus oophorus). After ovulation the walls of the follicle are transformed into corpus luteum. The cells of the theca interna secrete oestrogens, while the cells of the theca externa secrete progesterone.

If fertilization occurs, followed by implantation, the corpus luteum remains and becomes hypertrophied ; it is the gravid corpus luteum which ensures endocrine balance during the first three months of pregnancy. If implantation does not take place, the corpus luteum becomes atrophied.

The different stages in the menstrual cycle are thus under the control of an endocrine secretion of the ovary and the hypophysis, which at the end of the cycle determine menstruation (on condition that implantation of a fertilized egg has not taken place).

(1) in the first, or follicular, phase the hypophysis secretes the FSH hormone. Under the influence of FSH a Graafian follicle develops in one of the ovaries and secretes increasing amounts of oestrogens throughout the follicle's maturation. The oestrogens thus produced lead to proliferation of the endometrium, regeneration of the functional layer from the basal layer : this is the pure follicular phase.

(2) about the fourteenth day ovulation takes place ; this requires the combined action of LH and FSH in rigorously determined proportions.

(3) during the second, or luteal, phase the corpus luteum develops and secretes progesterone from cells of the luteinised theca. The theca interna continues to secrete oestrogens. Under this double hormonal impregnation the endometrium develops and reaches the pre-pregnancy stage. The hypophysis secretes less and less LH. The corpus luteum loses its trophic support which degenerates. The sex steroids, oestrogens and progesterone, subside and the endometrium begins to disintegrate.

Then menstruation starts.

2 - *Fertilization* -

This is the union of two gametes of different sexes - male and female - to form an egg : the necessary beginning of the development of all living beings which reproduce sexually. Fertilization starts with the union of two haploid cells (N chromosomes) and ends with the metaphase stage of the first mitosis of segmentation.

In 1787 Spallanzani demonstrated that there must be union of a spermatazoon and an egg in the human. In 1934, Hammond confirmed that fertilization only takes place if the spermatazoa are already in the Fallopian tube some hours before ovulation. In 1948, Rock studied fertilization in vivo. And in 1970, Edwards achieved the first human fertilization in vitro.

2.1. - *Gamete transport* -

2.1.1. The oocyte : Once liberated from the follicle at ovulation, the oocyte is drawn towards the infundibulum. It is the action of the infundibulum, resulting from the position it takes up at the time of ovulation, together with the current which is created mainly by the cilia covering its surface which leads the oocyte into the oviduct. The muscular contractions in the oviduct bring the oocyte to the utero-tubal junction.

Carried by the current of intra-peritoneal fluid, the egg progresses towards the oviduct, where permanent reabsorption of the fluid by the lymphatic apertures takes place. This tubal «aspiration» of the liquid film thus explains the egg's migration. Finally, the waving of the cilia on the tubal epithelium and the tubal contractions further help its progress along. These mechanisms of propulsion are subject to a hormonal influence :

- oestrogens increase their contractility ;
- progesterone lowers the tonus and allows some peristaltic waves to continue.

The egg is transported into the outer third of the oviduct, where fertilization takes place. There it remains fertile for between 12 and 24 hours.

2.1.2. The spermatozoon : The spermatozoa emitted at the opening of the uterine cervix still have some 20 cm to travel to reach the outer third of the oviduct where they will fertilize the egg. At 37°, the average speed is 2-3 mm a minute ; the distance is thus covered in one and a half to two hours.

The role of the uterine cervix is of the greatest importance : with the normal anteflexion and anteversion of the uterus, in a supine position the cervix is completely submerged in the freshly emitted sperm.

At the time of ovulation, alterations in the cervix and the utero-tubal junction work together to create optimal conditions for survival and ascension of the sperm. The utero-tubal junction is enlarged, its tonus is relaxed, and it undergoes rhythmical contractions. The outer orifice of the cervix is distinctly dilated. The cervical mucus undergoes profound cyclical changes :

- increased secretion
- chemical changes with more than 95 per cent of water
- isotonicity in NaCl, with the blood and the sperm
- a rise in the glycogen and glucose level
- maximum fluidity
- pH acidified to the maximum in the ovulation phase.

In the cervical mucus the spermatozoa survive 48 hours.

The ascension itself is as follows : the spermatozoa undoubtedly pass through the cervix due to their own motility, but other factors may intervene : chemical trophism and aspiration by the cervix during orgasm. As they pass through the cervix, a natural selection probably takes place which results in the less mobile or abnormal forms remaining in the vagina. Once the spermatozoa have passed the horns, their progress in the opposite direction from the cilia in the oviduct is thought to be due to a central counter-current. The acidity of the contents of the uterus may enable them to survive for two or three days.

In order to become fertile the spermatozoa must undergo maturation in the female genital tract ; this is known as «capacitation». Capacitation is thought to last about three or four hours in the human female.

2.2. - Fertilization - At the time of ovulation the oocyte is surrounded by several layers of follicular cells, which form the corona radiata or cumulus oophorus. In the human female, unlike other animal species such as the cow, the ewe or the pig, the cells of the cumulus last for a fairly long time and the spermatozoa have to force their way through to the oocyte. It has been found that the enzyme of cellular dissociation, hyaluronidase, carried by the spermatozoa, and acrosine, play a role in fertilization.

Passage through the cytoplasmic membrane is rapid (5-10 minutes) and the sperm head then penetrates the cytoplasm horizontally by fusion of the cytoplasmic membranes beginning in the middle of the sperm head and progressing towards its anterior and posterior extremities. They swell while the second polar body is emitted. The pronuclei are formed, and finally join together at the time of the first segmentation division. The oocyte is normally penetrated by only one spermatozoon, the first to reach it. Those which follow find an impenetrable barrier in front of them, either at the level of the egg's cytoplasmic membrane or in the membrane itself. This barrier is the result of a cortical reaction by the egg at the time of fertilization.

3 - *Applications for contraception* -

3.1. - *Blocking the hypothalamic-hypophysial control* - Oestrogens and progestogens have an effect on hypophysial control, which they block.

High doses of oestrogens are not easily tolerated. Progestogens cause atrophy of the mucous membrane and reduce menstruation : for this reason the two have been associated in a tablet which is « The Pill ».

These hormones may be given by delayed-action intramuscular injection, implant, etc.

3.2. - *The obstacle in the way of gamete transport* - This is the male preservative, or the female preservative (diaphragm). The same effect can be obtained by preventing the production of cervical mucus (continuous doses of progestogens).

The intrauterine device (IUD) is also an effective obstacle, as it immobilizes the spermatozoa.

3.3. - *Inhibition of egg implantation* - The IUD, by its presence as a foreign body, brings into action defence mechanisms which are not well understood, but which also act on the blastocyst.

3.4. - *Reversible or permanent sterilization*- by ligation of the Fallopian tube or removal of part of the vas deferens.

3.5. - *« The morning-after» pill* - (postcoital oestrogens) acts both on egg transport and on the endometrium where it prevents implantation.

3.6. - *Immunological methods* (anti-RH, anti-FSH, anti-LH, anti-spermatozoa) *and prostaglandins* (luteolysing effect) where research is still going on.

INTRODUCTION TO CONTRACEPTION

P.O. HUBINONT

Problems connected with human reproduction are nowadays among the major subjects of concern to which it is the duty of humanity to find a solution, both in terms of the status of human beings and of the balance of the planet.

The United Nations devoted the year 1974 to Population, because of the impact that the demographic explosion threatens to have on the nations which have not yet perceived the full importance of this question for their survival and the survival of humanity as a whole. Thus, Kurt Waldheim stated : « It is my hope that the World Population Year and Conference (which is being organized) will take their place in the annals of the United Nations among the leading events of the seventies, and that they will bring us much nearer to the day when the world can say that the demographic problems which we have to face have been understood, and that action to solve them is being taken ». Humanity has therefore to face a problem made up of many factors, and which stems from human reproduction and consequently from the growth of world population.

An exponential growth rate may be a cause for rejoicing, for it reflects the quality of medical care which men and women can enjoy : the worst of the epidemic diseases have been overcome ; a greater number of newborn children find optimal conditions for survival ; and the aged survive as the result of constant improvement in conditions of living and in public health. Though all these improvements are not yet distributed equally throughout the world, their effects are nevertheless felt in very many places, and especially where the population is most numerous and consequently tends to increase rapidly.

Population growth, however, carries with it a great number of problems : food resources, housing facilities, the development of a social structure necessitated by the arrival of a much greater number of children. And, later on, the absolute necessity of creating employment for the newcomers to enable them to earn incomes essential to survival, and beyond survival a decent life, and beyond that again, happiness.

This very brief summary gives an idea of the multiplicity of consequences arising from the more or less uncontrolled growth of world population. It would be tempting to conclude that it would be sufficient to put a brake on the growth of world population in order automatically to solve the numerous problems that confront humanity today. A neo-Malthusian attitude is however not applicable. If we are to admit that among all the measures that might be taken to solve the difficulties now facing us, those concerned with the use of contraceptive techniques have a not inconsiderable part to play, we must also admit that they do not provide the total reply to the problem - far from it - since they imply participation and free choice of the individual.

Economists, sociologists, psychologists and politicians, all those whose task it is to work for greater wellbeing of the population of the globe, have a duty to increase food resources, to seek increased housing facilities, to create more and more varied forms of employment, and to ensure that all may benefit from the greatest possible cultural and educational development. Realism forces us to admit that the means are limited in these various fields, and it may well be that the day has come when the whole cultivable surface of the globe has been used up and all possibilities of housing have been exploited. The imagination of research workers may still be able to take us beyond the limits we know today, but this margin is diminishing inexorably.

If we must at all costs increase the means of enabling a growing percentage of the world's population to live in the best possible conditions, it is furthermore essential that everyone applies measures to channel population growth while at the same time ensuring the development of conditions indispensible to the life of the human race. The solution to the problem of demographic explosion thus rests on a global policy covering simultaneously spacing and planning of births and suitable measures to achieve optimal conditions for the development of the human race.

If we go further into the problem of population growth, we find that another important difficulty arises, stemming from the imbalance between degrees of growth and flagrant inequalities between the resources at the disposal of developing countries and of those which call themselves developed (and which certainly are so by solely material criteria). Since the latter were the first to become aware of the cataclysm towards which humanity is hurtling if a satisfactory solution is not found to the problem of uncontrolled growth, they have tried by a variety of means of persuasion to make the countries of the developing world aware of the importance of controlling an exploding birth-rate. Such advice, however, coming from rich and developed countries cannot but be interpreted wrongly and considered by those concerned as an attempt to intervene in their internal affairs - and worse, as attempted genocide. The measures proposed cannot fail to be considered as neo-malthusian, that is, taken with the sole purpose of safeguarding the privileges of the most fortunate to the detriment of those who are underprivileged.

This is a serious obstacle to getting positive measures accepted in order to control an exploding birth-rate which in the long run is harmful to economic health. Such measures have often been described as paternalistic by those concerned. But here again, wisdom has finally prevailed. Men and women in charge of public affairs accept discussion of the most suitable methods to solve the difficult problem of the imbalance between a too numerous population and insufficiently expanding resources.

The dissemination of contraceptive methods aims at putting at the disposal of everyone the means of achieving birth planning, as one of the solutions certainly intended to solve the population problem but also, and above all, problems of family health. Contraception should not be considered as a method of limitation but as a means of planning. More and more governments, as well as their citizens, are become convinced that this is the right way to see the problem, and we will only quote as proof the requests made by many governments of developing countries with the aim of undertaking either campaigns to bring to the citizens themselves the methods which will be discussed later, or alternatively of carrying out basic studies on the conditions required to ensure that such campaigns result in measurable success.

For here again it is not sufficient that enlightened governments be convinced of the value of such undertakings to see them automatically followed by success. The basic motivations of the individuals who are being addressed must be taken into account. And this is probably one of the major difficulties of any campaign for promotion of methods for birth planning. It is indeed essential that all the resources of human imagination, eloquence, and dialogue be set in motion to create awareness of the value of such a policy, considered not from an Olympic summit of government, but down at the level of the individual users with their culture, their patterns of behaviour, their ancestral traditions, their way of life and their way of thinking.

It is at the level of the individual and the family circle that action must be taken, using arguments that are in accordance with the real welfare of the individuals concerned. It is beside the point to invoke highflown notions of cosmic economy when those who are being approached find in a high birth-rate a means - however uneconomical - of overcoming devastating infant mortality. This is the time, then, to demonstrate and bring alive the progress that has been accomplished as a result of measures to help the family in health matters, particularly in the field of perinatal and infant mortality. It is essential that everyone becomes aware of the profound revolution that has come about as the result of this survival of the newborn and young children. From now on, to have more children no longer means a larger working force, but on the contrary a larger number of men and women for whom other work will have to be found because they are no longer needed to till the soil. And so emigration starts to urban areas, erroneously considered as a promise of future riches ; and we are in the midst of the problem of spreading towns full of unqualified and unemployed labour, an additional source of poverty.

For the individual, what needs to be given most emphasis is the contribution that family planning can make to the search for personal happiness. This is in fact the approach needed to gain acceptance by the greatest possible number of men, women and couples of the techniques that modern contraception puts at our disposal. It is not enough to put sophisticated family planning methods in the hands of medical teams, however highly qualified they may be ; they will fail unless at the same time account has been taken of the individuals' basic motivations, whose precise aims are still unconscious and unformulated, if nothing has been done previously to bring them up to date and discuss the question with them. Contraceptive techniques can be discussed and applied once all the requisite information has been given to a population group which has already been prepared by adequate educational measures.

The first measure to obtain acceptance by the largest possible number is education. This indeed seems to have been appreciated by the large organizations of the world which concern themselves with population problems. Any measure is worthwhile provided it enables the message to be passed on. Whether it be plays with a family planning theme by local groups, or travelling exhibitions, or enthusiasts who use public transport as a means of disseminating new ideas, all measures are effective if they provide a means of coming into contact with each and every one, and, more important, of discussing the validity of the idea.

It is easy to understand how complex the task is before a tangible result can be observed ; and yet it is the only means of achieving the desired result while respecting human dignity. By giving everyone their full value as a man or woman it will be possible to disseminate the message most effectively, on condition that those whose task it is to do so are also fully aware of the mentality of those they are approaching. Local human resources should always be used to the full to ensure that the idea of contraception really sinks in. At the same time it is essential to establish the services which will be responsible for making available the contraceptive methods themselves. As soon as those concerned have been informed and convinced, they should be able to obtain what they need without too much effort, otherwise with the best will in the world they may give up before reaching the goal.

It is obvious that whatever part of the world is under consideration, the problem is the same : if contraception is to be accepted, the idea must be widely broadcast among the public. The only differences may lie in the fact that communications circulate with varying degrees of speed in different areas. Furthermore, in certain areas there are religious or cultural taboos that are sometimes of a durable nature, and this means that the idea of contraception may sometimes only be accepted with reticence by large sections of the population.

In conclusion, let us discuss contraceptive techniques themselves, and review briefly the conditions they must meet before they can be made widely known.

In summary form it may be said that there are four such conditions :

- the methods must be simple to use ;
- they must be inoffensive ;
- they must be effective ;
- they must be inexpensive.

Let us take first of all simplicity of use. Some of the techniques we are led to advise imply a good knowledge of human anatomy. It is obvious that these methods can only be successful if the population group concerned has no prejudice against «auto-exploration» of the genital tract, and also possesses a high level of knowledge and understanding. An attempt to promote use of the diaphragm among a motivated but ill-informed rural population will automatically result in a wrong use of the method proposed, with the certain consequence that there will be many failures, thereby making the method unacceptable to the rest of the population. We must always take into account the stage of development of the individual we are dealing with before prescribing any kind of method. The chances that the use of the method will spread quickly will depend largely on the ease with which they can be used.

It is, furthermore, out of the question to have recourse to techniques which may turn out to be dangerous for the users. In all cases, a thorough study of the method must have been made, and those who dispense techniques must have as precise a knowledge as possible of their side-effects, as well as their advantages and disadvantages. Contraception consists of making it possible to plan one's family ; it must therefore be ensured that the methods proposed are completely reversible, and disguised sterilization is therefore out of the question. Safe use therefore implies absence of potentially dangerous side-effects as well as assurance of complete reversibility. It is essential that a relationship of confidence be built up between those who propose and those who - in the long run - dispose.

It is also of the greatest importance that the techniques proposed be of a very high level of effectiveness. We all know that no technique is 100 per cent effective, but in any event the technique introduced must represent progress over what the population may previously have learned through verbal transmission of ancestral traditions. Since all modern methods which are at present available have the disadvantage of possibly leading to failure - though luckily in a comparatively small number of cases - we must be sure that the method of use of even the most foolproof technique is clearly understood, for if not it will result in enough failures to make it unacceptable to other potential users. What needs to be chosen is not necessarily the most effective method, but the one which has the best chance of being used most assiduously by the people most concerned. Acceptability of a technique, therefore, does not depend solely on its effectiveness, or on the absence of side-effects, any more than on simplicity of use.

There is a fourth factor which may well hamper dissemination of the technique : that is the price that those concerned have to pay to obtain them. If this problem is sometimes less acute in areas such as ours, it is not the case elsewhere, where the cost of the method may in some cases be a factor responsible for its being given up. The problem of price in fact has two aspects. Either the people are accustomed to total socialization of medicine with free care - and in this case it is those who govern whose task it is to determine the cost of a population planning policy ; and it may be in such cases that the price is too high for the economic resources of the area concerned, and outside assistance will have to be provided. Or else care is not provided free of charge, and in this case the cost of the methods will have to be placed at a level which puts them within the reach of practically everyone. We know that such a cost will certainly not represent the true cost, and that in this case, too, outside assistance will have to be provided for the purchase of the supplies needed to pursue a family planning policy. But it would obviously be difficult to provide this kind of service free of charge when medical care is not free ; this might well give rise to the opposite psychological reaction, refusal to use techniques which are depreciated by the very fact that they are free of charge.

Acceptability of contraception is thus a very complex matter, since it is dependent on a series of factors which we have reviewed briefly. There is one, however, which has only been mentioned in passing, and which is far more subtle and cannot be defined precisely in the same way as the four basic notions we have analysed. This factor is the quality of the relationship between one or more of the members of the health team and the potential user(s). Here we are entering the complex field of the psychological components in all human relationship. However excellent the technicians may be, they will only be successful in their undertaking to the extent that they allow the relationship which has been built up to acquire this human dimension which is essential to the acceptance of techniques which after all touch on the most intimate part of an individual's life.

We must never lose sight of the fact that although we have originally considered contraception from the point of view of world balance, we have finally come to realize that what is in fact at stake is the personal happiness of each individual. This personal aspect must never be lost sight of, for it is the only way to find the language needed to gain acceptance of the idea of contraception and the technical concepts that are associated with it.

TECHNICAL ASPECTS OF CONTRACEPTION

T. BRAT*

1 - *Hormonal contraception* -

If we are nowadays in a position to help couples throughout the world to find a solution to their family planning problems with some chance of success, we owe this particularly to the work of Pincus.

More than twenty years ago, this author and his collaborators published their first studies on the effects of progesterone derivatives on reproduction in mammals, and especially in man.

It was already known that synthetic oestrogens given in high doses were capable of suppressing dysmenorrhoea since ovulation was inhibited at the same time. It had never occurred to anybody to use this artifice to prevent pregnancy, because of the serious side-effects associated with the absorption of high doses of oestrogens, and also because control of both ovulation and the menstrual cycle was imperfect.

The appearance of substances derived from progesterone, and active when given orally, brought about tremendous progress in the field of fertility control.

Nowadays, hormonal contraception provides this control by a graded use of progestogens which at the utmost make it possible to stop ovulation by massive action on the hypothalamus, the pituitary gland and the ovaries, and at a lower level to impede penetration of the spermatozoa into the cervical mucus by selective action on the latter's physical properties.

1.1. - *The classical pill* -

1.1.1. Definition. Originally, the classical or combined pill is made up of a constant association in time between synthetic oestrogen and synthetic progestogen.

The oestrogens generally used are either ethinyl oestradiol or its derivative 3 methyl ether. The latter possesses a biological activity equivalent to two-thirds of the original compound.

The progestogens which enter into the composition of all hormonal preparations are of two fundamentally different types, the first being derived directly from progesterone and the second from 19 nortestosterone.

It is therefore possible to combine an oestrogen and a progestogen, either of different types or in different proportions, and thus to produce a hormonal combination which will remain constant for the duration of its use. Such associations, absorbed daily for twenty to twenty-two days a month, act together in a number of ways and also have a whole series of side-effects according to the nature and quantity of the synthetic products used to make up the compound.

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1.1.2. Method of action. If we first of all consider how they act together, the classical pill acts at four different levels. The first to be affected is the hypothalamo-pituitary system, since a drop in the secretion of the gonadotrophic hormones, FSH and LH, is observed. This would seem to be the result of an inhibition of hypothalamic origin in the secretion of releasing factors, leading to an absence of pituitary stimulation.

The fact that these associations are antiovulatory is therefore due primarily to their action on the hypothalamo-pituitary system. However, these substances also have an effect on the ovary itself, but this seems to be somewhat debatable since it is often difficult to distinguish points of impact in organs which have an independent activity.

If it is admitted that one proof of absence of ovulation is the small amount of pregnanediol eliminated during the cycle, it is nevertheless intriguing to note that in women taking antiovulatory pills, typical corpus luteum associated with low elimination of pregnanediol is still found to be present! It is possible that this is caused by the effect that antiovulatory pills may have on the functioning of the follicle itself and more especially the corpus luteum.

The third point of impact is the endometrium. This preferential recepter of sex hormone influences reflects the simultaneous action of the oestrogen and progestogen concerned. The histological picture shows a hormonal balance achieved by the absorption of steroid compounds. It can thus be seen that certain preparations contain a preponderance of oestrogen or progestogen, while others on the contrary reflect a dominant anti-oestrogenic activity. In any case, whatever the picture that is observed, it never corresponds to that of an endometrium that is ready for the implantation of a fertilized ovum.

Finally, the cervical mucus is also profoundly modified by these hormonal preparations : it becomes less abundant, sticky, and altogether less permeable to the spermatozoa.

The multiplicity of sites where these substances are active explains the high degree of effectiveness of this contraceptive technique, provided of course that they are taken regularly by the women concerned. And this brings us to the problem of acceptability, which is directly dependent on the side-effects caused by the taking of these hormonal preparations.

1.1.3. Side-effects. It is easy to imagine that antiovulatory pills may give rise to a series of symptoms of which some are objective and others subjective. If they are subjective, it is because ovulation is an essential function in the reproductive process, and its inhibition has repercussions on the personality which, it must be remembered, has been conditioned by upbringing and the philosophical and religious environment, and thus by a certain way of seeing things. This may result in a conflict, or at least in ambivalence which shows itself in symptoms of many different kinds, whose number is not exhaustive. It may be noted, however, that objectively the prevalence of oestrogens or progestogens may result in a series of signs which are illustrated in Table I.

Table I

Classification of side-effects according to the type of endocrine imbalance

- HYPEROESTROGENIA
  - Nausea
  - Retention of liquid :
    - oedema
    - sharp increase in weight
    - headaches
    - congested breasts
  - Hypertension
  - Hyperstimulation of target organs :
    - increased cervical secretion
    - uterine cramps
    - increase in uterine myoma
    - adenoma of the breast
  - Chloasma
- HYPO-OESTROGENIA
  - Hot flushes
  - Vulvovaginal atrophy
  - Dyspareunia
- EXCESS OF PROGESTOGEN
  - Stimulation of appetite
  - Progressive increase in weight (anabolism)
  - Fatigue
  - Depression
  - Lessening of libido.

Objectively, changes in blood loss are noted. Patients may show a decrease in volume of menstrual blood, which may sometimes even disappear altogether.It is much more rare for there to be an increase.

In some cases, blood loss (intercurrent haemorrhage) may take place while antiovulatory pills are being taken. Although this is usually transitory, during the first two or three months of use, it is not so if it happens much later, for instance after a year or two. In such cases it becomes necessary to change the formula.

It should however be emphasized that changes in intestinal resorption connected with emotional stress may also be responsible for the same type of blood loss. In this case the important thing is to take action on the emotional climate and not so much on the hormonal formula. This last remark applies particularly to the most recent pills which are of a classical composition and contain only a minimal quantity of each of the components.

Nevertheless, it must be recognized that oral hormonal contraception is a major subject of concern for very many other reasons than its side-effects which have just been enumerated and which, all things considered, are of minor importance. We are thinking particularly of diabetes mellitus, the risk of malformations in offspring, thromboembolic complications, and cancer.

1.2. - The sequential pill -

1.2.1. *Definition.* This form consists of administering successively oestrogens alone for twelve to sixteen days, followed by a traditional oestro-progestogen combination the rest of the time.

The aim of this method is to respect physiological mechanisms, since it attempts to reproduce the natural picture in which oestrogens are present from the beginning of the cycle, even though in small quantities, whereas progesterone appears only in the second half, after ovulation.

1.2.2. *Method of action.* In this contraceptive technique, ovulation is also out of the question, and therefore the doses of oestrogen have to be higher if they alone are to inhibit the process of ovulation.

Thus, action is observed on the hypothalamo-pituitary system. But with regard to the endometrium and the cervical mucus, it will be seen that the former, though it does not reproduce exactly a histological picture compatible with that of a spontaneous and normal cycle, yet becomes favourable to implantation if ovulation should be insufficiently inhibited. And the mucus, under the influence of the oestrogens, becomes especially plentiful, semifluid, and above all penetrable by spermatozoa.

It may thus be concluded that the sequential antiovulatory pill does not have a variety of points of action and that there is a risk of this affecting its efficacy to the extent that inhibition of ovulation by oestrogens in isolation is less constant.

1.2.3. *Side-effects.* The minor side-effects of this method are the same as those found in cases of hyperoestrogenia with the exception that, considered globally, they are usually found in not more than 10 to 15 per cent of women taking oral antiovulatory pills.

1.3. - Major complications -

Let us now return to the major and disturbing side-effects theoretically connected with the use of both the combined and the sequential pill.

1.3.1. *Diabetes mellitus.* Although data in the literature cover investigations whose parameters vary, they give the impression that in some cases anomalies may possibly be observed during oral glucose tolerance tests. In the same cases increased insulinaemia is also observed. If the women concerned have no previous history of diabetes such disturbances are both asymptomatic and reversible. On the other hand, for patients who are known to be diabetic the result may be a need for slightly more insulin, but this does not seem to us to constitute a contraindication to the use of antiovulatory pills.

If, however, the potential user has already shown signs of diabetes during a pregnancy, or if the balance of her carbohydrate metabolism is found to be precarious, the administration of oral antiovulatory pills is liable to cause diabetes to appear earlier and lead to having recourse sooner to exogenous sources of insulin. In such cases use of the pill is strictly contraindicated.

1.3.2. *Risk of malformations.* Turpin and Lejeune showed that the material coming from miscarriages in women who had previously used antiovulatory pills was particularly rich in chromosome aberrations, and from this they drew the conclusion - rashly, since they had no control series available - that the pill led to undoubted risk of malformations in the offspring of women who had used it. It is hardly necessary to add that experience up to now has given no confirmation whatsoever of these fears. Furthermore, a scientific argumentation exists to prove how erroneous were the affirmations of Turpin and Lejeune.

J. Boué (1), also of Paris, undertook a study of karyograms of the product of spontaneous miscarriages in women who either had or had not previously used the pill. The investigator of course knew nothing of the antecedents before she made the examinations, and it was only later that she decided to divide the results according to the criterion : use or non-use of oral contraceptives. The observations showed clearly that there was no statistically significant difference in the respective frequency of chromosomal anomalies as between the two groups. It is true that there were many anomalies in both groups, but that was in fact probably the cause of termination of pregnancy.

1.3.3. Cardiovascular complications. There is no doubt that thromboembolic complications are the ones that have received the widest publicity in the past few years, and that have most often led to women stopping the pill, often too hastily.

The conclusions of Inman and Vessey (2) following a retrospective study are the most significant element in the argumentation used to prove that antiovulatory pills entail an increased risk of vascular complications. Their results are based on data emanating from the United Kingdom and Denmark, and it should at once be emphasized that there is a danger of error if these figures are generalized to cover the population of the world as a whole. There is no doubt that different local conditions (the way of life, food, climate, etc.) may have a definite influence on the frequency of thromboembolism. This is clearly illustrated by the situation in Switzerland where this type of complication is particularly frequent when the «foen» - a warm south wind - blows, whereas in Belgium, only 600 kilometres away, it is most uncommon. It may therefore be noted that according to Inman and Vessey the risk of thromboembolism in the United Kingdom and Denmark is more frequent when antiovulatory pills are taken, especially after the age of 35 (see Table II).

These observations must however be qualified by the concept that the pill is taken in order to avoid unwanted pregnancies. Thus, in cases where this type of medication is not used, the risk of fatal complications connected with pregnancy is far from negligible, and it may even be noted from the same table that in such cases pregnancy constitutes a much greater danger than the taking of oral contraceptives.

Table II

Estimation of risk of death by pulmonary embolism or cerebral thrombosis in users and non-users of oral contraceptives

compared with the risk of death from other causes (Inman and Vessey, 1968)

	20-34 yrs	35-44 yrs
Estimated death rate per 100,000 women in good health, married, not pregnant, from pulmonary or tertiary thromboembolism		
- users of oral contraceptives	1.5	3.9
- non-users of oral contraceptives	0.2	9.5
Death rate per 100,000 women from :		
- cancer	13.7	70.1
- automobile accidents	4.9	3.9
- other causes	60.1	170.5
Death rate per 100,000 pregnancies, from :		
- complications of pregnancy	7.5	13.8
- abortion	5.6	10.4
- complications of childbirth	7.1	26.5
- post-partum complications :		
. phlebitis, thrombosis and embolism	1.3	2.3
. other complications	1.3	4.6
- all risks connected with pregnancy, childbirth and post-partum	22.8	57.6

We also have a prospective study carried out in the United States by Drill and Calhoun (3), who put together data collected by various research workers covering more than 800,000 cycles. This showed that women followed up longitudinally in time do not run an increased risk of thromboembolism. Furthermore, any such pathological symptoms in their past history are no longer considered to be a contraindication to the use of antiovulatory pills, since there is no increase in risk even in such cases !

More recently, work by Goldzieher and Dozier (4), Frederiksen (5), Mann et al. (6), and Jain (7), has enabled an exhaustive analysis to be made of the publications of Inman and Vessey. Their conclusions by no means coincide with those of Inman and Vessey. They point out that various parameters such as smoking, lipid metabolic disorders, and hypertension were not taken into account, whereas they have a decisive effect on the genesis of thromboembolic accidents.

They have thus demonstrated that although twice as many thromboses occur after the age of thirty in women taking antiovulatory pills than in women not taking them, this difference is not statistically significant. On the other hand, in cases where one or more aggravating factor is associated with use of the pill (and heavy smoking is the most decisive of these), the risk of complications of the type mentioned above is multiplied by five, or even by nine, making the difference between the two groups highly significant (see Table III). We thus arrive at a more subtle distinction in the conception of the pill's effect on thromboembolism, whereby it is strictly contraindicated, at least after the age of thirty, to take the pill and smoke at the same time.

Table III

Relative risk of non-fatal myocardial infarction
with respect to the taking of oral antiovulatory pills and cigarette smoking
(according to Mann et coll., 1975)

The basic risk, 1, is that of women who neither smoke nor take hormonal contraceptives.

Cigarette smoking	Use of oral contraceptives	
	YES	NO
Smokers (total), who smoke :	11.67	2.15
- more than 15 cigarettes a day	14.81	4.23
- less than 15 cigarettes a day	5.38	0.77
Non-smokers	2.02	1.00

1.3.4. Cancer. It may be asked whether taking the pill may eventually lead to a higher frequency of malignant degeneration in certain organs which are the targets of the hormones taken - in this case the endometrium, the cervix, or the breasts.

There is in fact nothing so far to confirm such fears. On the contrary, the literature shows that groups taking antiovulatory pills are to some extent privileged entities since they are subjected to stricter supervision, which includes in particular early detection of cancer. In these groups, cervical cell anomalies characteristic of pre-cancerous or cancerous lesions are found less often than in others.

This impression must however be qualified by a more precise correction which comes from Tietze (8). This author has assessed the number of cases that must compulsorily enter into comparative groups of women either taking or not taking antiovulatory pills for a risk of neoplasia, should there be one, to be multiplied by five or by ten.

If we take cancer of the cervix, 7,500 users and 7,500 women in a control group must be observed simultaneously for the same length of time by the same observer for the annual prevalence to be multiplied by five. The number must be increased to 60,000 in each group for a risk multiplied by two to be observed.

For cancer of the endometrium, these numbers increase to 75,000 and 600,000 respectively, whereas for cancer of the breast they decrease to 11,000 and 85,000.

Results of research recently published in the United States (Silverberg and Makowski, 1975) (9) have drawn attention to an eventual causal relationship with the appearance of glandular carcinoma of the endometrium. These authors studied about twenty cases, and in thirteen of them there was a history of use of Oracon at one time or another. Unfortunately, the time between having recourse to this preparation and the appearance of cancer was often very short, which made it difficult to establish a relationship between the two facts. In other cases, the use of sequential pills had either been of short duration or had preceded or followed the use of other contraceptive preparations. Finally, nothing was mentioned about the frequency of use of sequential pills in the general population. It is therefore impossible to draw any definite conclusions. These conclusions will indeed never be known, for sequential pills have since been taken off the market on the instructions of the Food and Drug Administration.

As a result, although the general impression prevails that risk of cancer connected with the pill seems to be lessened particularly by better supervision, prospective studies need to be undertaken covering sufficiently large numbers of women for this impression to be backed up by figures.

Recently, however, Vessey, Doll and Sulton (10) published the results of a retrospective study carried out on the same lines as the survey of thromboembolic complications. Their conclusion was that the pill does not increase the risk of breast cancer, and in fact that it seems to protect this organ against the appearance of affections of a non-malignant nature in women who have been taking antiovulatory pills for more than two years. Such a group would be four times less likely to be admitted to hospital for a biopsy, as compared of course with a group of women who were not taking the pill.

1.3.5. Hepatic tumours. Very recently, various authors including Niessen (11) in the United States have described a higher frequency (although it appears still to be a rare event - 1 : 500,000) in the appearance of benignant tumours of the liver, whose prognosis however remains uncertain. Although these tumours are not cancerous in the vast majority of cases, they may rupture the fibrous coat of the liver as they grow and cause an intraperitoneal haemorrhage that may be fatal. This is what makes them serious. If they are diagnosed early enough, they require surgical therapy which is also not without its risks.

Various hypotheses have been advanced to account for their genesis, in which deterioration in local vascularization is thought to play a not inconsiderable rôle. For the time being, however, it remains to be proved that there really is an aetiopathogenic relationship between antiovulatory pills and hepatic tumours. But the mere fact that attention has been drawn to this possible new association will automatically lead to the discovery of more frequent cases because of the interest which practitioners will henceforth take in the subject, though this will not be enough to substantiate the relationship.

We have thus covered the field of minor and major side-effects associated with the use of combined or sequential antiovulatory pills.

From an analysis of the method of action of these preparations, we have been able to infer their very great efficacy. Indeed, if we consider Pearl's indices, they vary between 0.0 and 0.5 for the classical pill and 0.5 and 1.5 for the sequential combination. It is obvious that this efficacy depends not only on the substances used but also, and above all, on the way they are used.

Until now we have been concerned with the simultaneous or consecutive use of two different steroid substances. These substances may however be used separately to achieve the same contraceptive aim. Let us take progestogens, since their use corresponds more closely to the idea of contraception, that is, prevention of pregnancy.

1.4. - Progestogens -

It is possible to use progestogens daily, by oral route, in much smaller quantities than those used in classical combinations. For instance, chlormadinone alone was used in a daily dose of 0.5 mg before it was temporarily withdrawn from the market, whereas the classical pill contained 2 mg of the same substance. This was the mini-pill, which is nowadays made up of either 0.350 mg of norethisterone acetate (as compared with at least 1 mg in combined pills), or 0.030 mg of alpha-norgestrel (as compared with 0.125 - 0.250 mg of the same substance in the classical pill).

The fact that doses of the active substance have been considerably lowered, while leaving out oestrogen altogether, naturally means that the method of action is different.

The mini-pill must not be considered to act by blocking ovulation, although this may be observed in 70 per cent of cases.

By decreasing the quantity of the active substance it is possible to obtain a more selective method of action, and what is observed particularly in this case is a change in the usual nature of the cervical mucus, which makes it unsuitable for penetration by spermatozoa. Yet in spite of this, some have been observed in the uterine tubes ; it follows that histological transformations of the endometrium must also play a rôle, apart from the intervention of a possible change in the nature of the tubal secretions.

Although the suppression of oestrogen removes the criticisms made of the traditional pill since the risk of thrombosis has been removed, the use of the mini-pill - also known as luteal supplementation - does however entail some side-effects.

The most obvious of these side-effects is that the menstrual cycle may be completely disturbed. It may be observed, indeed, that keeping a check on it is far from satisfactory when its length may vary from fifteen to thirty-five days, and be quite unpredictable. Blood loss is generally small, although its duration is also unpredictable.

There is no doubt that this is a major reason for women giving up the mini-pill. There are also other side-effects, but they are of a subjective nature and therefore essentially variable.

As for the efficacy of this method, it depends on the type of progestogen used and on how regularly it is used. Whereas forgetting to take the classical pill does not generally have any untoward result, the same cannot be said of the mini-pill. The literature indeed provides us with a variation of 1.1 to 16.4 in Pearl's indices.

The use of progestogens alone has also taken another direction in the form of intramuscular injection of long-acting preparations, in this case 150 mg of MPA (medroxyprogesterone acetate) every three months.

This method of administration frees women from the constraint of taking a pill every day. From this point of view, the method is certainly attractive.

However, it has a major disadvantage in that the cycle becomes very irregular. During the first few months of use, the menstrual cycle is completely disturbed. The frequency and duration of bleeding, which is not usually very abundant, become quite unpredictable.

As time passes after starting this treatment, lasting amenorrhoea progressively sets in, and the users seem to find this more satisfactory as long, of course, as they have been clearly informed of the reason for this.

Although irregular bleeding is an important factor in discontinuance, the same is not true of amenorrhoea, which appears to be accepted much more easily.

Another disadvantage lies in the very fact that the preparation is long-acting. While it is known to act for at least ninety days, it may happen that its action lasts very much longer - in extreme and exceptional cases even up to a year and a half. This characteristic of course makes the method unsuitable for planning birth spacing, but makes it more suitable for couples who have already had the number of children they want without their decision being irrevocable, however. The method is indeed reversible, only the time of its reversibility cannot be known precisely.

The method also has a high level of efficacy since the failure rate according to Pearl's index is 0.27 per cent in unfavourable statistics.

2 - *Mechanical contraception* -

While contraception based on the use of hormones obviously has a predominant place among the methods available for birth control, the rôle that mechanical methods can play should not be neglected.

Mechanical methods can be divided into two groups according to where they are applied.

2.1. - *External mechanical methods* will be discussed first, because of their anteriority, and among such methods those which can be used by men.

These are condoms or male preservatives, which are still widely used, and which have gained the latter name not because they preserve against pregnancy but because they are also a means of protection against venereal diseases.

Although they seem simple to use, certain definite rules must be followed if condoms are to be fully effective. First, the condom must be fitted on to the erect penis before the beginning of sexual intercourse, for it is well known that a spermatic discharge, full of spermatozoa, is possible before the orgastic ejaculation.

Furthermore, a space must be left at the end of the condom to receive the ejaculation, in order to avoid the risk of tearing the thin transparent membrane of which the preservative is made. Some condoms in fact have a small reservoir at the end for this purpose. Finally, the sexual act must be finished before detumescence of the penis, to prevent the condom from slipping and remaining in the vagina on withdrawal.

In addition to these precautions, users must be sure to use only preservatives that are controlled and guaranteed, since flaws are unfortunately very common in less good quality products and as many as 20 per cent may be faulty in batches put on the market !

To reduce the risk, it is therefore recommended that a vaginal spermicidal foam be used at the same time ; we shall return to this later.

External mechanical methods are also available for women : these are vaginal obturators, and their rôle is to form a screen between the penis and the opening of the cervix, thus preventing direct projection of sperm on to the surface of the cervix.

There are various types : the cervical cap, which looks somewhat like a thimble, is applied tightly to the cervix ; the cervical dome, with a larger surface, covers the cervix and the fornix of the vagina ; and finally the vaginal diaphragm, by far the most commonly used, is made up of a rubber membrane mounted on a circular spring, and is inserted in the vagina to cover the cervix and the whole front of the wall of the vagina, resting on the back of the pubis, the Douglas pouch, and the side pouches.

Different sizes are of course available, but it must be emphasized that all these obturators imply a good knowledge of female anatomy as well as learning how to insert them. They are therefore only suitable for women who are able to meet these two conditions.

Furthermore, female preservatives cannot prevent spermatozoa, which are extremely mobile, from finding their way round the obstacle and managing to get into the cervical canal. It is therefore essential to use them together with a spermicidal jelly. The contraceptive action takes place through the combination of a mechanical obstacle and a spermicidal chemical substance.

The use of vaginal obturators must also meet four imperative requirements, as follows :

- they must be used in all circumstances, and in particular there must be no tolerance for times in the cycle supposedly free from ovulation ;
- they must be used in association with spermicidal jelly ;
- after insertion, it is essential to make a finger check that the cervix is properly covered ;
- they must be left in place at least eight hours, since the spermicidal chemical substance only becomes inactive after about seven hours.

This method is highly effective in population groups which meet all these conditions, and the failure rate in this case is not more than 3.5 per cent of women per annum, measured according to Pearl's index.

2.2. - The mechanical method which has been most popular is ***used internally***, and is known as ***the IUD (intra-uterine device)*** ; it is a foreign body made of plastic or metal, inserted in the uterine cavity and left in place indefinitely or for a limited time according to its nature.

The method is not new, for it was already known at the end of the last century and was first popularized between 1920 and 1930 by Graefenberg and his school. After that it fell into disuse, and has regained considerable popularity only since 1959, as a result of progress in the plastics industry and the existence of effective means of treating possible infections.

Various models have been produced, but the one that has been the most widely used is undoubtedly the Lippes Loop D (the widest). Its extensive use has made it possible to learn some fundamental laws concerning IUDs. More especially, it is now known that the larger a device is, the greater is its efficacy, but also that there are more side-effects in the form of pain and/or bleeding. On the other hand, smaller devices may undoubtedly be less effective, but there are also less side-effects. Also, because they are smaller in size they are more easily expelled.

The Lippes Loop D provides the best balance between advantages and disadvantages, and gives a pregnancy rate of 1.9 per cent at the end of a year. Unfortunately, by adding up pregnancies, expulsions, and withdrawals for medical reasons, one is forced to the conclusion that the half-life of IUDs (the time at the end of which 50 per cent of women continue to use them) is not more than four years. This fairly high rate of discontinuance results from the problems already mentioned, and which should perhaps be discussed in more detail.

The insertion of an IUD may lead to slight changes in menstrual flow, in the form of a longer period of bleeding sometimes combined with an increase in the amount of blood. In addition, if dysmenorrhoea already existed, it may become slightly more pronounced.

Leucorrhoea may also appear to varying extents, sometimes with a bad smell, and this probably means that a certain amount of endometritis is present.

Any foreign body introduced into the uterine cavity is indeed likely to cause irritation and sometimes inflammation limited to the endometrium ; conventional treatment against infection is quite adequate to control them. If they extend to the uterine tubes or even to the true pelvis (pelviperitonitis), the IUD must be withdrawn, and the usual measures in such cases taken.

Real infections, either limited to the uterus or more extensive, are however rare. Uterine perforation, which may result from insertion without sufficient reduction of uterine flexion on the cervix, is still more exceptional. Technical errors of this kind are only found when an IUD has been inserted by staff who have not had sufficient training or who are not careful enough.

Appreciable progress has been made in the past few years, however, as a result of the addition of a copper thread to devices which are too small to be fully effective. IUDs are then used, not as foreign bodies, but rather as vectors of a substance which is the active element in prevention of pregnancy.

This reduction in size with maintenance of a high degree of efficacy has led to a decrease in the frequency of unpleasant side-effects (pain and/or bleeding). The risk of expulsion is not increased, however, to the extent that the shapes chosen are better adapted to the internal shape of the uterus.

The most widely used devices of this new type carry a copper thread with a surface of 200 mm^2 which gives them maximum efficacy for three years, at the end of which they should be replaced. Studies are underway on IUDs with a copper thread of 300 mm^2.

An attempt has also been made to transform the Copper T (the most widely used IUD with a copper thread) into a progesterone reservoir which would spread slowly towards the endometrium and would act without an intermediary on the target organ. Unfortunately, until now the amount of progesterone incorporated has given no hope of action lasting longer than one year.

While the method of action of this last type of IUD can be foreseen, the question is far from being resolved as far as traditional IUDs are concerned.

The results of the various research undertaken lead us to believe that the action would be essentially local. Various histological, enzymatic and vascular changes have indeed been observed in the endometrium which support this working hypothesis. It has never been demonstrated, however, that implantation of the fertilized ovum is prevented. On the other hand, since the secretions emanating from the endometrial glands are modified, action on the phenomenon of sperm capacitation may be envisaged.

The question of the method of action of IUDs is of course interesting from a scientific point of view, but it has a special connotation in countries with a Christian philosophy, where the possibility of IUDs having an abortive action has been suggested and their use rejected on this basis. It is however safe to state that it has not been possible to establish the veracity of this assertion up till now.

3 - *Chemical contraception* -

When describing certain mechanical methods, we mentioned the combined use of chemical substances with spermicidal properties.

Such preparations must be introduced into the vagina at the right time in order to be able to immobilise or kill the spermatozoa which are deposited there.

It is obvious that the longer the contact between spermatozoa and spermicide, the more effective their action will be. It is therefore important to use preparations with a high dispersion capacity, and to deposit them in the vagina early enough for them to have the opportunity of spreading.

It is also understandable that failures are likely to happen if the spermatozoa have been projected into the cervix without being able to come into contact with the chemical. Spermicidal substances must therefore be considered as a complementary method used to enhance the efficacy of certain mechanical methods such as condoms and diaphragms. If they are used alone, they should be kept for cases where protection does not need to be complete : for instance, when a young woman wishes for an interval or two or three months after ceasing to take antiovulatory pills and before becoming pregnant.

In cases such as this, spermicidal foam would seem to be the most suitable preparation, because of its high dispersion capacity.

In general, it may be said that the great majority of chemical spermicides available contain the same basic compound - nonyl-9 - the differences being chiefly in the excipient used and in the method of presentation.

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PSYCHO-SOCIAL ASPECTS OF CONTRACEPTION

J. CORNEZ-VAN DEN EYNDE *

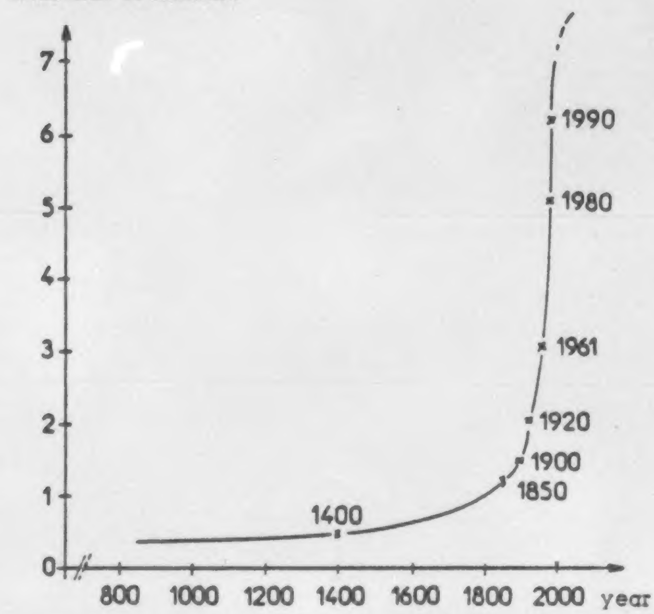
1 - *Contraception, a problem of our times* -

Reading newspapers or books, listening to the radio or watching television brings home to us that contraception is not only a medical and scientific problem but also a social and human one, of most immediate concern to the individual, the family, the community, and indeed the whole world.

A number of facts militate in favour of applying contraceptive measures as quickly as possible in a world which is in the midst of demographic and economic upheaval.

Since the fifteenth century the population has been growing more and more rapidly, and this trend continues to increase.

World demographic explosion



This great increase in the world's population can be explained, in demographic terms, by the difference in the rates of decline between overall mortality, and particularly child mortality, on the one hand, and natality on the other.

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Health development has been responsible for completely upsetting the demographic balance which, in the past, was maintained through the action of great epidemics and famines which caused the highest mortality in areas where the population was most dense. It has also led to a longer average life-span of the population, which is most noticeable in developing countries where the time-lag to be caught up was greater.

In most of these countries the birth-rate did not fall in the nineteenth and first half of the twentieth centuries as in many Western countries ; on the contrary, it often rose very rapidly, and thus the growth rate of the population is much higher in developing than in developed countries.

The demographic gap between developed and developing countries will therefore tend to widen in the years to come, and this may well lead to an imbalance which will be particularly serious because the distribution of habitable land and material resources - food, industrial and financial - is also very unequally balanced. In such circumstances it is hardly surprising that the frequent proposal, and sometimes the imposition, of family planning programmes in developing countries by rich countries - which indeed finance them to a very large extent - are often considered by those to whom they are «offered» as selfish interference intended to maintain and perpetuate this imbalance by slowing down their population growth.

It may be asked why industrialized countries slowed down their birth-rate - some of them more than a century ago - even before progress in medicine and public health had a decisive effect on mortality. It is difficult to find an answer to this, but the question should certainly not be reduced to its demographic and health aspects alone. It is obvious that psychological, social, economic, legislative, cultural and religious factors all played an essential part in this evolution, in which it is often difficult to distinguish the influence of any particular one, and in which in fact their respective weight varied according to the country, the region, the human community or the social group, as well as the period in time. It would therefore be absurd to neglect these factors nowadays when considering developing countries.

R. Illsley, in his article on « Socio-economic factors and conditions of family life », studies at some length these various factors and their subtle interrelationships, on the basis of three theoretical models whose mechanism he analyses. There is therefore no need to stress this further. On the other hand, it is probably worthwhile to discuss briefly the position of some of the main religious groups towards contraception.

The Catholic Church has already progressed by accepting the principle of the couple's right to responsible and freely determined parenthood. Its attitude to birth regulation may be summarized as follows :

- it only concerns couples who have valid moral reasons for putting off having children or for definitely not having any ;
- the choice of methods is limited to those known as natural, that is to say essentially periodic abstinence.

However, many practising Catholics are somewhat disappointed by the Church's slowness and «prudence», especially in recent years when the problem of contraception has taken on considerable importance in public opinion, and when marital ethics show that the psychological aim of union takes precedence over the biological aim of reproduction. This extreme prudence which some, even within the Church, find excessive, is at the root of conflict situations and dissociated behaviour : many convinced and practising Catholics have no hesitation in having recourse to contraception and do not consider themselves in a state of sin and exclusion by so doing.

With regard to developing countries, the Church points out that the solution to the population problem does not lie solely in birth regulation, and that a fair distribution of the world's goods and resources is needed without delay.

The Protestant Church has adopted a much more indulgent position. Present-day Protestant thinking indeed holds that the first aim of marriage is not reproduction, but close union between a man and a woman in shared love. Calvin himself preached that woman was created by God primarily to be man's companion, and only after that to bear children.

Furthermore, the Protestant Church holds that each couple, and each partner in the human couple, is face to face directly with God and decides on his or her personal problems in the light of his or her own conscience.

The various Protestant sects, however, do not accept the idea of contraception without reservations. These reservations concern :

- the state of mind of the couple who practise contraception and its consequences for society. Protestants, in the same way as Catholics, consider the intention and the moral reasons which lead a married couple to use a contraceptive method ;
- the choice of methods to be used, which must be acceptable to both partners in Christian conscience and must not cause them either physical or emotional harm.

Until recently, the leaders of the Moslem religion were not particularly concerned with searching in the sacred writings and traditions of Islam for indications to justify the practice of contraception. Now, however, in the modern Arab world jurists and Islamic religious leaders are taking a growing interest in the problem of family planning.

The Koran, indeed, considers the existence of a large family to be a mark of divine blessing. But there are many who interpret its precepts as meaning that birth control is permissible if, for instance, a woman is too weak to bear the fatigue of childbirth, or if a man is too poor to provide for his family. A number of Moslem countries have in fact adopted a policy of regulation or spacing of births, and some even accept induced abortion, though not without resistance from some religious authorities.

As for the point of view of the Jewish religion, the Tora teaches that together with the duty to produce children exists the duty to love. While it is true that large families have always been considered a blessing, and have enabled the Jewish people to survive, Judaism accepts the idea of an optimum number of children and that this will vary according to circumstances. For the pious Jew, the duty to produce children is accomplished once a boy and a girl have been born.

Contraceptives are authorized when the health of a mother is at stake, or when pregnancy might put her life in danger or upset her physical or mental balance, with all the consequences this may have for peace and harmony in the home. It should be noted, also, that the man is always forbidden to take the initiative ; the woman alone is allowed to protect herself. This difference most probably arises from the fact that the man is responsible for perpetuating the lineage, whereas the woman is only called upon to cooperate.

The position of the Orthodox Church varies according to the country, and it is difficult to identify a real body of doctrine on the subject. It is therefore not surprising that practices also vary greatly in countries where this religion is influential.

Having reviewed briefly the attitudes of these different religions and sects to contraception - and these concepts are particularly important for us in the exercise of our profession because of the mixing of population groups nowadays and the fact that families belonging to these various communities attend clinic sessions - let us now consider the subject from the point of view of the family and the individual vis-à-vis contraception.

In developing countries, to have many children in a family constitutes for the parents :

- firstly, obedience to ancestral traditions of fertility, which was essential in the past to counterbalance the effects of excessively high mortality ;
- secondly, often an economic necessity, for in poor countries a child starts work early, especially in agricultural communities ;
- thirdly, for the woman a manifestation of her fertility, and for the man a proof of his virility : it is well known that sterility is often found hard to accept, and may cause the couple to separate ;
- finally, a guarantee for their old age.

The position is not the same in developed countries, where the birth of children poses very many problems to the couple in modern society. Most young couples wish to have one or more children, but their birth very often has many consequences for the couple's financial position and the mother's professional activity which may be difficult to deal with. Is it normal that because a mother gives up working for a time to look after her children the family should be worse off than one in which two salaries are coming in ?

The promotion of women in modern society must also be taken into account. A correlation may be established between increased wellbeing and progress in the equality of relationships between men and women. When the standard of living rises, the relationship between the status of the man and the status of the woman tends to become harmonized.

A woman usually aspires, like a man, to attain :

- her economic freedom through a professional activity which respects her womanhood, that is, which allows her to have a home and a family life. Working conditions offered to women are still too often incompatible with the responsibility for a family of several children. This is a problem which modern society must take into consideration if the essential contribution made by women's work is not to be wasted ;
- her sexual freedom, which enables her to choose the timing and the number of her pregnancies rather than continue to submit to the will of nature and of her partner, as she has done for thousands of years.

This freely accepted motherhood, which has been made possible by contraceptive methods, represents tremendous progress for a woman, psychologically, economically, and socially.

Finally, this panorama would be incomplete without mention of the profound changes that have taken place in the sexual behaviour of adolescents and young adults. Even if this phenomenon is studied more and is better known in industrialized countries, it does not spare the countries of the third world. Earlier puberty and biological sexual maturity, as well as the increasingly early age at which sexual intercourse starts, lead among other things to a greater risk of sexually-transmitted diseases and of pregnancy in unmarried adolescents. These two problems are discussed elsewhere in this document (see the articles by J.P. Deschamps : «Pregnancy and contraception in adolescence», and A. Siboulet : «Present epidemiological aspects of sexually-transmitted diseases»).

2 - *The choice of a contraceptive method* -

There are very few women, or couples, who at one time or another in their lives do not wish to have children. But there are very many who, for social, economic and psychological reasons, cannot take on the responsibility for more than one or two children. It is easy to imagine the infinite number of motivations, which may or may not be openly acknowledged. They may be rationalized in many ways, and the real reasons are very often hidden by alleged motivations. For some women fear of motherhood is due to economic and social difficulties more than anything else. For others it is connected with marital conflicts which are frequently at the root of pathogenic emotional tensions, as much for the children as for the parents.

In pre-marriage, marriage, and family counselling clinics, we of course respect the philosophical, religious and aesthetic view of the women and the couples who come to seek advice. We must never impose any kind of contraceptive method. Based on long conversations with a woman, and sometimes with her husband, their real motivations must be studied and, together with them, the best solutions found to meet their beliefs and their way of life. If they have already found methods with which they are satisfied, other methods should not be advised except in exceptional cases. Even if the method they have chosen has always failed, a different one must not be imposed if they do not agree with it.

In spite of all these precautions, the matter cannot be said to be solved. The ambivalence of a woman who at one and the same time wishes to fulfil herself through motherhood but is afraid of the consequences, or conflict between the partners, may make it necessary to reconsider both the motivations given and the methods used. Two facts are particularly striking :

- first of all, the few women who seem to be interested in modern contraceptive methods. Where we work, only about 20 per cent seek advice from their doctor or from family planning centres ;
- secondly, and this is even more disturbing, about 50 per cent of the women who come to ask for a means of contraception never come back for follow-up and seem to have given up the idea.

It seems obvious that many couples practise contraception more or less empirically, without seeking professional advice, and that the most commonly used empirical method is coitus interruptus. And yet patients whose husbands have used this method quite successfully for several years visit the clinic : why do they come for advice ? For some, it is because they suddenly feel frustrated : their husband, they say, takes his pleasure before they do and leaves them unsatisfied. Others fear a rival with whom their partner would take no precautions. Others again dislike leaving the initiative to their husband, and cannot accept that he should retain the presence of mind and the good sense to withdraw.

The condom is certainly not satisfactory to all women. Many resent this interruption, and its unaesthetic nature, during the prelude to the sexual act. Many claim that they are irritated by the rubber membrane. Women who are anxious or apprehensive are afraid that the preservative will tear or that it will remain in the vagina on withdrawal. Others, whose life is more complicated, prefer a contraceptive that will protect them in all circumstances.

The diaphragm has the disadvantage for anxious women that they are afraid of placing it wrongly, and get up to make sure all is well ; others fear that it may move during intercourse. But nowadays many women refuse it or give it up after a short time because of the daily constraint of putting it in place. For a man, the idea of an obstacle between his partner and himself may be a cause of discomfort, but more often psychological than physical.

Whatever method is used, if there is not complete agreement on its choice either the man or the woman will find an excuse to prove that the couple's sexual harmony is threatened. The intrauterine device (IUD) is the only exception to this rule, if it is well tolerated, for it is unnoticeable during the sexual act. It has the added advantage of putting sole responsibility on the gynaecologist for putting it in place and even for possible failures.

Oral contraception also has its problems. It might be thought that the patient would feel safe, and that since the taking of the pill does not coincide with the timing of the sexual act there would be no interference. And yet we are often faced with reactions which involve fear and are influenced by the environment, by reading, and by the partner.

Fear is inherent in some women ; those who are absent-minded are afraid of forgetting to take the pills, those who are anxious are afraid of a failure or of undesirable side-effects. It must also be recognized that a favourable or unfavourable atmosphere may be created by the home-circle, by reading newspapers and magazines, and by conversations among women, and that all this has a definite influence on the side-effects. The latter, which are discussed objectively in T. Brat's article : «Technical aspects of contraception», are indeed often denied or else magnified according to the circumstances.

Husbands also put their word in. If they are jealous they do not like the idea that their wife is protected against pregnancy simply by taking a pill every day ; if they are worriers they exaggerate the importance of minor ailments ; if they are in love they are afraid that taking the pill may cause some disturbance of libido. Others again worry in case their wife has forgotten to take it, and become tyrannical, especially if they have an absent-minded wife.

The three-monthly administration of long-acting progestogens, though it guarantees contraception, has the serious disadvantage of causing metrorrhagia during the first year in 75 per cent of cases, and of being responsible for long periods of amenorrhoea subsequently. For these reasons it must be admitted that this method is still unacceptable to most women, as they usually prefer to maintain their menstrual rhythm.

Altogether, these various methods often involve fantasies, anxiety or scruples for a variety of reasons, which for their users make them either a panacea in spite of failures experienced, or else a danger in spite of their safety. In a family planning centre it is for the staff to give patients a sense of security and allay fear, while at the same time pointing out the weaknesses of one method or another adopted without prior choice after having read about it, heard it talked about, or under the influence of a partner who is often just as poorly informed. If resistance to a particular method is encountered, one should not hesitate to change it. It is important to give women the impression that the decision is not irrevocable and indeed that they can come back at any time to ask for it to be changed. They must be given a feeling of understanding and confidence, as this is the only way to give them the sense of security that they need.

3 - *Resistance to contraception* -

It sometimes happens, however, faced with successive rejection of the various methods proposed, that one is forced to admit that what one is dealing with is resistance to contraception itself. Such resistance may come either from the wife or from the husband.

A man's resistance to contraception may have a number of underlying reasons : as a partner he may be against the pill on principle, the diaphragm may be in his way, or he may feel the wires of the IUD. He would not consider using preservatives or withdrawing, either, or he may be opposed to all contraceptive methods in which the woman alone is responsible for procreation because he wishes to remain in control of it. In this case there is nothing to be done, although some women do take the pill without the knowledge of their husbands ; but this is always a sign of deep disharmony between the partners.

Some men are against the pill for religious reasons : contraception makes them feel guilty. In this case, natural methods must be explained to them as clearly as possible, or they should be put in touch with a religious authority who is able to give them information and, in certain cases, to remove their feeling of guilt. Others again are worried by the idea of using a method of contraception and are unable to make up their minds which method to use. They must be helped patiently to find their own way.

A woman's resistance to contraception is more frequent than is generally thought. We are often faced with women who are hostile, sometimes even aggressive, and opposed in principle to whatever is suggested. The IUD is too dangerous, the pill makes her put on weight, and the diaphragm is unacceptable. It must then be admitted that such women do not want contraception, and this is of course quite independent of their motivation not to have any more children.

There may be many reasons at the root of this resistance : to accept contraception, whatever the method used, is to accept sex life. Thus, frigid women are not happy with contraception. When one sees women who are always discontented, it is not difficult to guess the basic cause of their frustration and aggressivity.

Other reasons may be found, however. Some women bear a grudge against their husband for various reasons, often because of previous unwanted pregnancies. They protect and defend themselves by allowing intercourse only infrequently, or by refusing it altogether, and since contraception removes the excuse of refusing intercourse it is thus quite unacceptable, especially since such women are often frigid. In this case it is not surprising to find a woman resistant to all methods which she considers an unnecessary obligation or dangerous.

There are also women who are eternal victims, and who «enjoy being miserable». They are against contraception because it removes one of their reasons for complaining and thus being protected by those around them. Others are frightened of taking any form of responsibility at all. When contraception is looked upon in this way it becomes a cause of anxiety rather than relief, and leads to the opposite result from the one sought for.

Some women feel guilty about contraception, for instance certain practising Catholics who, if they accept a contraceptive method other than the temperature method, no longer feel at one with their conscience and with the Church. In such cases it has been observed that the IUD is the most acceptable method, since it is the most easily forgotten.

Other women again are ambivalent about pregnancy : they unconsciously wish for what they fear the most. The more unfavourable the circumstances (no husband, no work, no home, no money), the more they yearn for a child. Thus one sometimes sees young women who are pregnant without having done anything to avoid it, even if the pregnancy has eventually to end in induced abortion. The same ambivalence is found in many adolescent girls, and in unmarried women who are not satisfied with their life and are haunted by loneliness ; they wish for a child though on the other hand they are afraid of having one because of the social and material difficulties to which they would be exposed by motherhood. Even if such ambivalence provides an explanation for many types of resistance to contraception, it does not solve the problem. It is not always apparent during the woman's first visit, and it is often difficult to bring it to light and try to clarify the woman's position towards the problem of sexuality and contraception.

It quite often happens, too, that the couple are not in agreement about the pregnancy : one of the partners wants a child, while the other is absolutely against having one. This disagreement often means that there is serious hidden discord. Problems which had previously been put aside by day-to-day preoccupations may well be brought to the surface by contraception, and in some cases this will exacerbate the differences of opinion between the partners and make them aware of the gulf that has grown between them.

Sometimes one of the two partners, seeing their marriage in danger, hopes to win the other back with the advent of a child. In such cases it may be the man who refuses all methods in which responsibility lies with the woman, in order to be able to fall back, for instance, upon a mistake during withdrawal. Or it may be the woman who refuses all the methods suggested and leads her partner astray by not telling him the real date of her period. In all such cases, if pregnancy results it is most likely to have the opposite effect from that hoped for, and then the couple's problem will be found to have increased rather than diminished.

4 - *Conclusion* -

Contraception poses the problem of the couple in its entirety ; it brings all the emotional factors into play, and contraceptive technology, if properly used, cannot be dissociated from a study of the dynamics of the couple, for unsuitable contraceptive methods may be at the root of serious disagreements. On the other hand, conflict between the partners often has repercussions on resistance to a contraceptive method. The development and maturing of the «personality of the couple» are the basis for all effective contraception, which must make room for the educational aspect in addition to purely technical problems if it is to succeed.

This means that the training of the whole health team must include, apart from techniques and their various applications, a study of the psychological problems inherent in contraception as well as in information and sex education.

Sex education must not be permissive, and it must not be defensive ; it should simply make it possible to avoid much unnecessary trauma. It is therefore to be hoped that it will be made compulsory in school curricula, and that it will be accompanied by clear and precise information both on fertilization and on the means of avoiding it, as well as on the responsibility it entails.

Any project for development of family planning must be integrated with a programme aimed at improving the social and economic living conditions of the population, upgrading its education, and bringing about conditions which will help towards emancipation of women. Contraception has an increasingly important part in preventive medicine, for its aim is to contribute to the promotion of voluntary, free and responsible parenthood. The problem is a vital one, since it is of concern to each one of us both individually and collectively.

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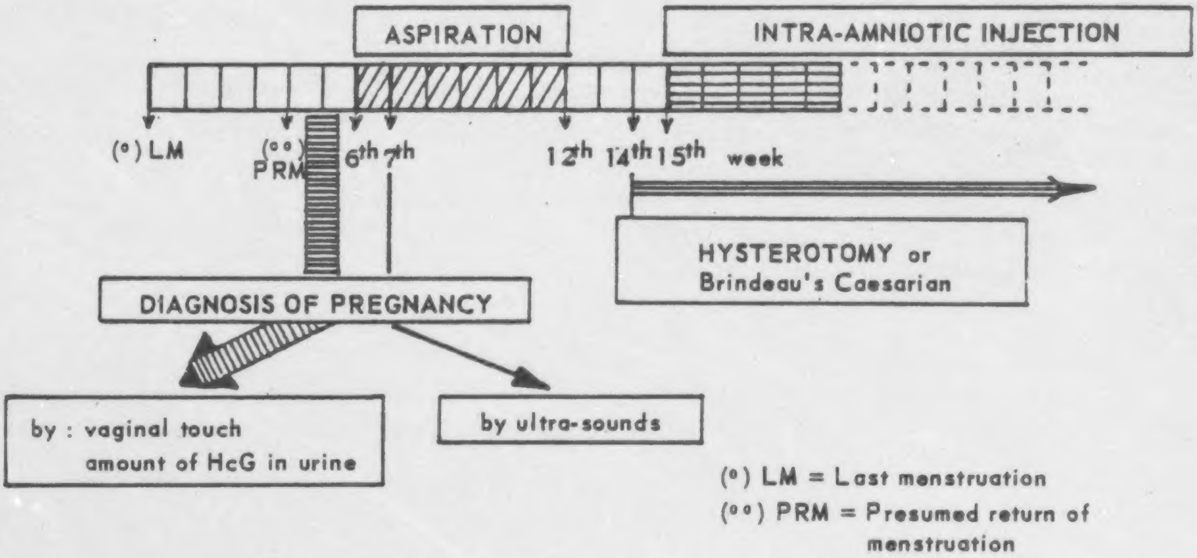
VOLUNTARY TERMINATION OF PREGNANCY :
TECHNIQUES BEFORE THE TWELFTH WEEK

M.J. BRUYNS[*]

In the following pages we shall deal with the technical and strictly somatic aspects of induced abortion ; the ethical and psychosocial problems involved will not be discussed here.

Once the indication is given, the first thing to determine is the age of pregnancy : the choice of the technique to be used will depend mainly on this.


ASPIRATION
INTRA-AMNIOTIC INJECTION
(°) LM
(°°) PRM
6th
7th
12th
14th
15th
week
HYSTEROTOMY or
Brindeau's Caesarian
DIAGNOSIS OF PREGNANCY
by : vaginal touch
amount of HcG in urine
by ultra-sounds
(°) LM = Last menstruation
(°°) PRM = Presumed return of menstruation

We shall describe briefly the technique of endo-uterine aspiration, at present the most widely used throughout the world for early voluntary termination of pregnancies of less than twelve weeks.

- Vaginal touch, which must be careful and thorough to avoid any underestimation of the age of pregnancy (twelve weeks at the most), and to determine the position of the uterus (anteverted or retroverted).

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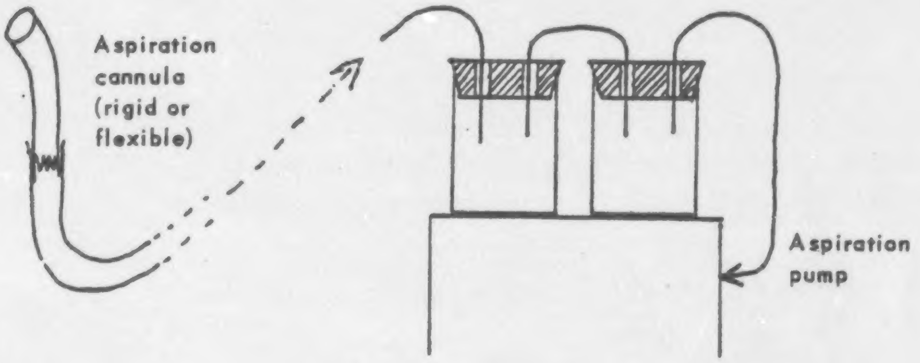
- Introduction of a sterile speculum and cleaning of the vagina. All the procedures which follow must be carried out under completely sterile conditions :
- Placement of a Pozzi's forceps.
- Paracervical anesthesia : 4 injections (in four different places) of 5 cc of Xylocaine at 1 per cent + 2u Syntocinon (optional).
- Careful hysterometry.
- Dilatation of the cervix with a Hegar's dilatator to a maximum diameter of 2 mm less than the number of weeks of pregnancy (e.g. 10 mm for a twelve-week pregnancy).

N.B. Dilatation is sometimes carried out to a maximum of 6 mm, even for pregnancies of twelve weeks, but we consider this less convenient, especially in centres where the operators are under training.

- A flexible or rigid cannula (made of disposable or re-usable material) is then introduced for vacuum aspiration, and is connected to an aspiration pump of the Berkeley type.



By working the aspiration cannula for a few minutes (5 minutes at most), 50-100 cc of matter is removed (blood, placenta, foetus, and ovular liquid).

A curettage with a small curette is useful to ensure that the uterus is empty.

If haemostasis is satisfactory, the operation is then completed. It takes altogether ten minutes at the most, and the pain is very slight, comparable to menstrual pain.

The advantages of this method, as compared with a curettage, are :

1. it is quicker ;
2. it is less painful (there is no need for narcosis) ;
3. there is less risk of perforation ;
4. there is less loss of blood (50-100 cc at most).

The risks involved in carrying it out, however (in order of frequency), and the precautions to be taken to avoid them, are as follows :

1. Retention (1-2 p.100) : "a quick inspection" with a curette after aspiration is not very painful and prevents retention.

2. Endo-uterine infections (1-2 p.100) whether or not complicated by perimetritis or salpingitis :

(a) absolute sterility of each gesture and each instrument is essential ;

(b) information on a pre-existing gynaecological infection can be provided by testing blood and sedimentation rate ;

(c) systematic preventive antibiotic therapy is recommended by some practitioners. This measure is not necessary in communities such as ours in view of the high rate of attendance at post-operative visits.

3. Haemorrhage of more than 200 cc (rare)
a fibrinogen assay
a prothrombin consumption time
a kaolin-activated partial thromboplastin time test
a bleeding time
a whole blood clotting time test
will bring to light pre-existing disorders of coagulation.

4. Perforation of the uterus : this is rare, but is an absolute contraindication to continuing vacuum aspiration.

If there is the slightest suspicion of perforation, all manoeuvres must be stopped.

Make the patient rest under antibiotics, and recommence the operation within a fortnight (either using the same method, or using other methods if the pregnancy has developed and has gone beyond twelve weeks).

In all cases where an extra-uterine organ (bladder, intestine, blood vessel, uterine tube or ovary) may have been damaged, it is essential to perform a laparoscopy in order to estimate the lesions.

5. Vagal shocks when the cervix is dilated : are prevented by premedication of 0.5 mg atropin (IM) Valium 10 mg (optional) orally or IM, Morphine, 5 mg (optional).

6. Allergy to local anaesthetics (convulsions) are very rare ; they can be prevented by a test (subcutaneous injection, only if antecedents are known).

Immediately after the operation :

- 1 - 4 hours of rest are enough for the patient to recover, and she can return home without difficulty.
- If the patient is Rhesus negative, an injection of Rhogam is to be given before she leaves.
- A systematic anatomopathological examination enables hydatidiform moles to be found, and helps diagnosis if extra-uterine pregnancy is suspected.

A systematic visit 10 - 20 days after the operation is essential in order to screen for : retention, infection, gemellary pregnancy in which one of the ovular sacs has continued to develop, pregnancy which has developed in a double uterus (after aspiration of the non-gravid uterus), extra-uterine pregnancy that has continued to develop, or hydatidiform mole.

Our rate of somatic complications is 3.4 p.100 for the first three years of activity (about 700 cases). Depressive psychological reactions are extremely rare (one case), and the first impression usually experienced by the women is one of relief. The problem of contraception is taken up at all stages : at the first visit, during the operation, on leaving hospital, and during the follow-up visit. Acceptance is generally excellent, and recurrences are extremely rare.

VOLUNTARY TERMINATION OF PREGNANCY WITH PROSTAGLANDINS

J.J. AMY*

1 - *Introduction* -

Natural prostaglandins are substances which are widely distributed in the organism of mammals. Their function is to modulate biological reactions. They play a fundamental rôle in setting uterine activity in motion, whether physiologically (spontaneous labour) or pathologically (spontaneous abortion).

During the second trimester of pregnancy, the uterus is particularly resistant to stimulation by oxytocin. Until very recently, voluntary termination of a pregnancy that had reached this stage required a major operation such as hysterotomy by the abdominal or vaginal route, insertion of foreign bodies in the uterus (bougies, Champetier de Ribes' balloons), or else injection of a hypertonic solute (sodium chloride, glucose or urea) into the amniotic sac. All these techniques lead to serious complications. Intra-amniotic injection of 20 p.100 sodium chloride, for instance, may cause hypernatraemia, haemolysis, or a syndrome of disseminated intravascular coagulation.

Unlike oxytocin, certain prostaglandins have a strong oxytocic effect throughout pregnancy. This characteristic, as well as the absence of serious complications following their correct administration, make them at the present time the abortifacient agents of choice during the second trimester of pregnancy.

2 - *Structure* -

Prostaglandins are unsaturated fatty acids derived from a hypothetical basic structure with 20 carbon atoms : prostanoic acid, made up of a cyclopentane nucleus and two side chains (figure 1). According to the composition of their pentagonal cycle, biologically active prostaglandins are designated by the letters A, D, E or F. The prostaglandins in groups E and F are of particular interest to us because of their oxytocic properties. Prostaglandin E (PGE) has a ketone function in position 9 and a hydroxyl group in C_{11}. Prostaglandin F (PGF) has hydroxyl groups in C_9 and C_{11} (figure 1). The numbers 1, 2 and 3 indicate the number of double bonds at the level of the side chains. Finally, each prostaglandin F has two isomers α and β, following the stereometric position of the OH function and H atom attached to carbon 9 (figure 1). Only the F_{α} compounds occur naturally.

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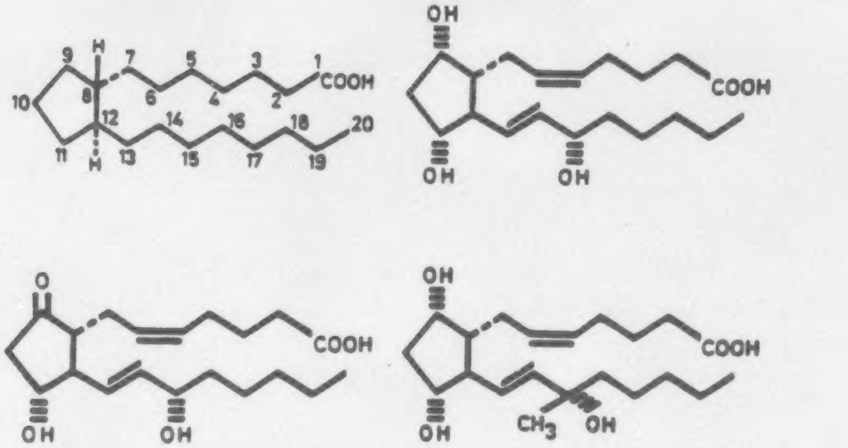
Figure 1



Key : Top left-hand corner : Structure of prostanoic acid
Bottom left-hand corner : Structure of prostaglandin E_2
Top right-hand corner : Structure of prostaglandin $F_{2\alpha}$
Bottom right-hand corner : Structure of 15(S), 15-methyl $PGF_{2\alpha}$

3 - *Induction of abortion with the help of natural prostaglandins* -

Prostaglandins may be administered by either general or local route. Intravenous perfusion of natural prostaglandins requires high doses of the order of 5 to $10 \mu g$/ min of PGE_2, or 50 to $100 \mu g$/ min of $PGF_{2\alpha}$. A large number of patients have side-effects such as feeling cold, trembling, hyperthermia, vomiting, diarrhoea, and bronchoconstriction. There may also be temporary irritation of the perfused vein.

Intravaginal administration of prostaglandin has the advantage of simplicity. However, the effect of prostaglandin on the uterus only takes place once it has been absorbed into the blood-stream. This results in systemic effects similar to those found with intravenous perfusion of prostaglandin.

Local, that is to say intra-uterine, administration of prostaglandin, although technically more difficult, is better tolerated because the blood rates remain low. Extra-amniotic instillation of natural prostaglandin is generally given by an indwelling catheter introduced through the cervical canal. This technique may be used at any stage of pregnancy, and is particularly useful at the beginning of the second trimester when the uterus has become too large to allow curettage or vacuum aspiration still to be performed, but is too small for transabdominal amniotic puncture.

Intra-amniotic injection of prostaglandin becomes possible after 14 or 15 full weeks of gestation. For repeated injections, it is preferable to place a catheter in the amniotic cavity from the outset.

Nowadays, the intravenous and intravaginal routes are no longer used for natural prostaglandins unless there is a contraindication to intra-uterine administration, as for example in the case of premature rupturing of the membranes. Intra-amniotic injection of prostaglandin should not be used in case of hydatidiform mole or prolonged retention of a dead ovum. The resorption of injected prostaglandin may in such cases be rapid and massive, and cause severe side-effects.

As examples, some frequently used dosages are given in table 1. With the correct dose, extra- or intra-amniotic administration of prostaglandin E_2 or $F_{2\alpha}$ induces abortion within 48 hours in more than 95 per cent of cases. The average time between injection of the first dose and expulsion of the fetus is somewhere around 15 hours.

Table 1

Termination of pregnancy with the help of natural prostaglandins
Examples of dosages used.

Route of administration	$PGF_{2\alpha}$	PGE_2
Intravenous	50 µg/ min	5 µg/ min
Intravaginal	50 mg/ 2 hrs	20 mg/ 2 hrs
Extra-amniotic	750 µg/ 2 hrs	200 µg/ 2 hrs
Intra-amniotic	40 mg + 20 mg after 6 hrs + 40 mg after 24 hrs	5-10 mg/ 8-10 hrs

4 - *Use of prostaglandin analogues* -

Natural prostaglandins are quickly inactivated, and must be given either in multiple doses or in one high dose. Furthermore, their systemic administration causes undesirable side-effects. Synthetic derivatives are at present under study in the hope of isolating a compound with a more selective action on the uterus. Until now, two types of analogues have shown signs of being particularly interesting, especially the 15-methyl derivatives (see figure 1), and the 16, 16-dimethyl derivatives of PGE_2 and $PGF_{2\alpha}$, obtained respectively by substitution of the H atom in C_{15} or of each of the two H atoms in C_{16} by a methyl group.

In 95 per cent of subjects treated with intra-muscular injections of 0.01 mg of 15(S), 15-methyl-PGE_2 methyl ester, or 0.25 to 0.75 mg of 15(S), 15-methyl-$PGF_{2\alpha}$ at intervals of two to four hours, abortion occurs within 48 hours, in an average time of between 9 and 18 hours. However, gastro-intestinal intolerance is very frequent (45-85 per cent of patients). The use of 15(S), 15-methyl-PGE_2 methyl ester is almost always accompanied by trembling (70-100 per cent of cases) and pyrexia (70-100 per cent), and this limits very considerably the interest that this method of administration may have (table 2).

The 15-methyl derivatives are better tolerated after intra-uterine injection, since with the required dose the serum levels are less high. Thus, the intra-amniotic instillation of 0.1 mg of 15(S), 15-methyl-PGE_2 methyl ester, repeated if necessary (in 10 per cent of cases) after 24 hours, is highly effective and causes very few side-effects. Rare episodes of vomiting and temperature elevation of 1.0 to 1.5° C are observed in 15 per cent of women thus treated. Similar results are obtained after extra-amniotic instillation of a 15-methyl analogue (table 2). Since each of these methods in most cases requires only a single instillation of the active compound, it becomes superfluous to leave the catheter in the intra- or extra-amniotic space.

The vaginal route, which does not lend itself to the use of natural prostaglandins, is on the contrary very promising for certain of their analogues. The vaginal administration of 0.75 mg of 16, 16-dimethyl-PGE$_2$-p-benzaldehyde semicarbazone ester at intervals of 4 hours combines with its very great simplicity a low frequency of side-effects and high efficacy(table 2).

Table 2

Termination of pregnancy with the help of prostaglandin analogues
Best results described

Route	Compound (dose)	Interval 1st dose/ abortion	Side-effects
Intra-muscular	15(S), 15-me-PGF$_{2\alpha}$ (0.25-0.75 mg/ 2-3 h)	13 1/2 - 16 1/2 h (95 p.100 $\leq$ 48 h.)	Vomiting : 65-82 p.100 Diarrhoea : 53-66 p.100 ↗ t° $\geq$ 1°C : 15 p.100
Intra-amniotic	15(S), 15-me-PGE$_2$ me-ester (0.1 mg/ 24 h)	16 1/2 h. (97 p.100 $\leq$ 30 h.)	Vomiting : 15 p.100 ↗ t° $\geq$ 1°C : 15 p.100
Extra-amniotic	15(S), 15-me-PGF$_{2\alpha}$ (0.5-0.85 mg) + Dextrane at 30 p.100 (single dose)	13.6 h. (84 p.100 $\leq$ 36 h.)	Vomiting (1.5 episode/ subject treated) Diarrhoea (idem)
Vaginal	16, 16-dime-PGE$_2$-p-benzaldehyde-semicarbazone ester (0.75 mg/ 4 h.)	18.7 h. (95 p.100 $\leq$ 36 h.)	Vomiting : 9 p.100 Diarrhoea : 7 p.100 t° $\geq$ 38° C : 4 p.100

5 - *Field of application* -

The use of prostaglandins with the aim of inducing abortion is only justified during the second trimester of pregnancy, when they can be considered as the most effective and least dangerous method at present available. During the first trimester they are no replacement for endo-uterine aspiration, which is highly effective, inexpensive, simple, and causes the lowest possible morbidity. The pre-operative use of a prostaglandin with a view to carrying out a non-traumatic dilatation of the cervix is practised in some centres, particularly on nulligravidae 10-13 weeks pregnant.

6 - *Complications* -

Retention of membranes or placenta takes place in about 40 per cent of cases, a frequency of the same order as after use of hypertonic saline or urea. It is easily remedied by systematic examination of the uterine cavity with an ovum forceps.

Although it is rarely mentioned, haemorrhage (loss of more than 500 ml) doubtless takes place in 5 per cent of cases, particularly after intra-amniotic use of prostaglandin. Early and systematic recourse to uterine examination, followed by injection of an ergot derivative, should reduce the frequency of this complication considerably.

Isthmic rupture is exceptional, and is not confined to prostaglandins. It has also been described after using hypertonic solutions. It can lead to formation of a permanent utero-vaginal fistula.

7 - *Contraindications* -

The use of prostaglandins, or any other pharmacological procedure aimed at termination of pregnancy, is strictly contraindicated in the presence of a scarred uterus. Glaucoma, asthma, and epilepsy must be considered as contraindications to the use of PGF, and sickle-cell anaemia to that of PGE.

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PSYCHO-SOCIAL ASPECTS OF MEDICAL ABORTION

J. de LOMBAERT*

One of the aims of this book is to describe the integration of family planning into other maternal and child health activities. The choice of a public health nurse in a prenatal clinic to deal with the psycho-social aspects of medical abortion is proof indeed that it must be accepted that activities concerned with the consequences of rejecting pregnancy and motherhood can no longer be dissociated from those concerned with the care of pregnancy or desired and accepted motherhood.

1 - *Definition of abortion* -

1.1. - « As used by medical profession, the term " abortion " denotes the termination of a pregnancy before the foetus has attained viability, i.e., become capable of independent extra-uterine life... It has traditionally been assumed that viability is attained at 28 weeks of gestation, corresponding to a fetal weight of approximately 1,000 g. » (1). This definition is considered purely empirical.

Although authorities have recommended setting the maximum duration of gestation used for defining abortion at 20 weeks (possible viability) - most foetal deaths occur before the 20th week - the traditional limit of 28 weeks has been maintained (1).

Reasons :
- this maximum is used by many countries which have adopted a definition of abortion ;
- it complements the definition of stillbirth recommended by the WHO Expert Committee on Health Statistics ;
- it corresponds with the definition given in the International Classification of Diseases and Causes of Death.

Abortion may be spontaneous or induced. « Induced abortions are those initiated by deliberate action undertaken with the intention of terminating pregnancy »(1)

1.2. - This concise definition covers the biological aspect of an event which should be understood first and foremost in terms of a real-life situation. Abortion is not an isolated and abstract fact ; it is part of everyday life, and cannot be discussed in the abstract as it is a living reality.

The term « abortion » is charged with emotion ; many women dislike using it when referring to themselves, and prefer to say that their « periods are late » or that they have « lost a blood-clot ». Some do not even mention it when they are having a medical interview.

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The continued existence of clandestine abortion in countries where legal abortion is possible may be partly explained by psychological resistance to confessing an unwanted pregnancy and a wish to put an end to such a pregnancy secretly ; this prejudice is connected with an earlier social order, and can only be overcome progressively.

« Interruption of pregnancy » is a term which can be used instead of « abortion ». According to B. Ribes, it is « an expression which brings the centre of attention back to the mother and makes it possible to avoid having to face the difficult question of humanizing the embryo ».

Abortion upsets moral values, and is dependent on legal, economic, demographic, and other requirements. In this context, for a woman abortion may be the solution of the problem, but may also be the interruption of a process which in other circumstances would have been welcomed joyfully ; it may be a momentary sacrifice of attainment of her womanhood.

The term « medical abortion » was chosen for this paper, and should be understood, not in the restrictive sense given to the adjective « therapeutic », but as opposed to illicit abortion carried out clandestinely by unqualified persons.

Repressive legislation, which was responsible for making abortion clandestine, prevented the study of this social disease. As Alan F. Guttmacher has said, « abortion is the only great pandemic disease which remains ignored and untreated by modern medicine ». It is only in the past few decades, and particularly in the past five years, that some countries have allowed abortion to be practised for social and personal reasons and have thus made it possible to study it from the point of view of medical techniques and the psycho-social approach.

Abortion, however, is not a present-day phenomenon.

In the distant past, traces of this practice can be found as an accepted thing. It was not condemned by Ancient Man, who considered it normal practice. Nor was it forbidden under Jewish legislation subsequent to Mosaic law, or in ancient Egyptian writings. In the Old Testament there is no provision concerning voluntarily induced abortion ; the foetus was considered to be part of its mother, and to get rid of it in the mother's womb was punishable only by a fine. There is indeed only mention of accidental abortion caused by someone else. As in most primitive societies, the father had proprietary rights over the person of his children, and it was thus natural that he should also have the right to get rid of the foetus.

The condemnation of abortion is essentially a product of Christian philosophy. For the Church it constitutes the murder of an innocent. In the Encyclical Humanae Vitae published in 1968, Pope Paul VI confirmed this concept : « We would once more solemnly declare that abortion which is directly sought and obtained, even for therapeutic reasons, must be absolutely excluded ». The Catholic position is based on respect for all human life.

But when does human life begin ? It exists as soon as the soul enters the body : is this at the time of conception, or later in foetal development ? For many centuries Catholic theology and philosophy taught that the soul enters the embryo only when it has a human form and possesses the essential organs. Thus the Church did not consider abortion to be murder as long as the soul had not brought life to the body. It was only in 1869 that Pope Pius IX eliminated this distinction. From then on, the Church censured abortion at any time during foetal development*.

The concept of existence is a strictly religious interpretation of a biological process, and each religion provides its own interpretation. Legislation in countries with a Christian tradition continues to be permeated by the concept of protection of the rights of the foetus. Most laws, however, consider abortion as an offence and not a crime, and yet nowadays it is commonly referred to as murder.

In vast areas of the world, however, such a debate has never troubled either the public conscience or that of individual people. Thus, for instance, since the Shinto religion has taught that a child becomes a human being only when it has seen « the light of day », no religious or ethical objection has been raised in Japan** with regard to the problem of abortion. Buddhist theory and Hindu theology contain no written interdiction against abortion. It is considered to be a social rather than a religious problem. In Moslem countries, the Islamic belief teaches that the life of the foetus only starts 120 days after conception.

More liberal Catholic opinions are emerging which try to define a human being by establishing a distinction between « human life » and « humanized life », the latter being founded only on « relation to another». « Just as human beings do not exist without a body, they are not humanized without this relationship with others ».

Medical ethics are based on respect for life ; medicine is intended to cure and mitigate human suffering. Physicians are loth to terminate what they consider to be a life. There is no doubt that for many physicians the broadening of legislation on abortion poses a grave problem for the medical conscience, since the physician is called upon to make a choice between his vocation which is to preserve human life and his duty which is to take the situation as a whole into consideration. The Declaration of the World Medical Association (Oslo, September 1970) states : « I shall maintain complete respect for human life from the moment of conception ». « I shall practise abortion for medical reasons in circumstances which cause conflict between the vital interests of the mother and those of her child ».

It was considered relevant to recall these concepts regarding respect for life seen in the light of religion, philosophy, and medical ethics because this is the context in which abortion as a situation is experienced. The way in which it is taken will later determine a woman's behaviour, attitude, and mental reactions.

2 - *Incidence of induced abortion* -

Nowadays abortion is practised in all countries, even in primitive societies.

It is impossible at the present time to obtain a true estimate of the total number of induced abortions (clandestine as well as legal) throughout the world. Opinions vary : 30,000,000 abortions may possibly be perpetrated every year throughout the world, that is, 1/4 of all births, with a ratio of 1/3 or 1/2 in developed countries.

Abortion is in fact practised as a method of birth control where contraceptive methods are unknown. For example, in Chile, one woman in four admitted to having induced between 1 and 35 abortions. Otherwise, it is a means of terminating an unwanted pregnancy resulting from failure of a method of contraception. It may be asked whether the possibility of legal abortion would produce an increase in abortions to the detriment of contraception. Successful contraception, available to all women who wish to use it, decreases the number of abortions. Here are two examples :

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* Exactly a century ago Keber made the discovery that the spermatozoon enters the ovum. Some theologians have drawn the conclusion from this that the new human being exists as soon as these two elements meet (2).

** 1949 : Proclamation of the law on protection of eugenics.

Japan

Law on protection of eugenics, 1949.

The Shinto religion holds that « a child becomes a human being when it has seen the light of day ». In this country, where abortion does not come up against any metaphysical barrier or moral interdiction, termination of pregnancy has become very much more common since the 1949 law was proclaimed. A few years later the Government asked the regional authorities to undertake an educational campaign in order that birth control should be achieved by preventive means rather than through abortion. The encouragement to use contraceptive methods had a twofold aim : to protect the women's health, and to develop a positive and active attitude towards life, rather than a passive and indifferent one.

Since 1957 the number of abortions has decreased progressively each year, and the proportion of couples who use contraception has steadily risen. A study made by Mainichi in 1965 showed that 52 per cent of couples were now using contraception, as against only 19.5 per cent in 1960. Contraception is gradually taking the place of abortion (2).

Netherlands

Van Emde Boas has made several studies on groups of women whom he followed up over a period of 20 years ; the results show that use of intelligent contraception brings down the number of abortions.

Beginning in 1932, he studied 1,736 women who attended an out-patient clinic. They had been married for an average of five years and all had several children. In 1932, out of a total of 4,263 pregnancies, 16 per cent ended in induced abortion. Between 1932 and 1940, 1 per cent of pregnancies ended in abortion among women who were practising contraception. From 1940 to 1945, the centre was closed : abortion rose to 10 per cent. Between 1945 and 1947, abortion again dropped to 1 per cent of pregnancies (2).

A survey by questionnaire in Czechoslovakia showed that most men cease taking an interest in contraception and count on legal abortion in case of unwanted pregnancy. The authors of the study consider, however, that a gradual change is coming about in public opinion as a result of an educational campaign stressing the possible consequences of abortion.

3 - *Women's motives* -

The causes of abortion are social, economic, and psychological. Throughout the world, most abortions take place because, at the time she becomes pregnant, the woman does not want to go through with pregnancy, give birth to a child, and bring it up. Only in a small minority of cases is a wanted pregnancy terminated because it jeopardizes the life or the health of the mother or else because it is known or suspected that the child will be malformed or abnormal.

The motives that a woman may have for wishing to terminate a pregnancy are determined by her personal situation and by the values and customs of the society in which she lives. In most cultures, certain pregnancies have always been considered undesirable from a social point of view, particularly those which occur outside marriage, following rape, incest, or adultery, or when the father of the child is of a different race.

Dr Sutter (Institut national d'Etudes démographiques, France) shows how different the determining factor is according to whether a woman is unmarried or married :

- In the replies from unmarried women, obvious social reasons are frequently given. It must be admitted that to bring up a child alone is always a heavy responsibility for a woman.

- Married women, who often have children already, refuse to continue their pregnancy in order to limit their family either temporarily or permanently. Thus Dr Sutter noted that eight times out of ten a married woman acted in full agreement with her husband or with his assent.

A report on a survey by A.M. Dourlen-Rollier based on police-court files in the Seine Department (France), concerns 508 young women tried by that court for abortion. They were questioned by the police authorities on the motive for their act, and all gave a reply (2). In order of frequency, the motives given were :

- an economic motive - 192/508 : 38 per cent of the women.
  i.e. insufficient resources, housing too cramped, husband or fiancé in the army or a student.
- a psychological and family reason - 183/508 : 36 per cent of the women.
  The married women wanted to limit the number of their children (84) or did not want to have any more because of dissension with their husband or because their husband had left them (16).
  The unmarried women pleaded a previous birth and the wish not to have a second illegitimate child (30), or, if it was the first pregnancy, the motive given was that they had been abandoned (23) or were afraid of their parents (30).
- a social motive - 74/508 : 14.5 per cent of the women.
  The married women because they were separated or divorced (42).
  The unmarried women because the man concerned was married (32).
- a medical reason - 59/508 : 11.5 per cent of the women.
  either poor health of the woman, one of her children, and/or her husband ; or death of a previous child.

Other reports indicated that the reasons given were :

- most frequently social motives in the widest sense ;
- health, or age.

Motives connected with the relationship between the partners were also frequent.

It should be noted, however, that in the majority of cases personal psychological factors are involved. They result mainly from the ambivalent attitude of the woman with regard to her pregnancy, particularly in the early part of it. They may depend on her personality structure, but are more often connected with a conflict between her and her husband or partner. This psychological attitude may indeed change in the course of her pregnancy. Studies have shown that one of the chief causes of abortion is the emotional

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inability to face up to pregnancy and childbirth. Rejection of pregnancy. Rejection of a child.

Social pressure may, however, prevent a woman from acting on her wish to terminate her pregnancy although her feelings towards the child may not change, and in this case a comparison may be made with the risks and consequences of illegitimate motherhood on the mental health both of the mother and of the unwanted child. For acceptance of a child is a determining factor in its satisfactory development and stability, and indicates that deep natural impulses have influenced the mother's or both parents' attitude towards their child.

External constraints such as the economic situation, or engrossing work, which are often put forward to explain an unwanted pregnancy, may justify the lack of desire to have a child. Child psychology has given ample proof of the problem which arise in an individual's development as a result of maternal or parental deficiency.

Although personal and deeprooted motivations of individuals underlie the structures of society, it is nevertheless true that if society does not provide the means of obtaining and using contraceptive measures, involuntary unwanted pregnancies are not due to social motives or difficulties between the partners, but to lack of organization with regard to contraception. Society cannot do away with abortion, but should in the normal course of events offer all women as far as possible the right to have children, though such a right may also be associated with means of avoiding unwanted pregnancies and unwanted children.

A study by the Swedish scientist Ohberg analyses the main reasons leading to abortion. The motivations which cause women to have unplanned or unwanted pregnancies are determined by many factors :

- Insufficient information on contraception. It should be noted that in a society there is often a connexion between reluctance to provide satisfactory contraception and reluctance to provide the means for terminating pregnancy.
- Inflexibility in contraceptive habits. Alarming reports on the pill caused this contraceptive method to be abandoned without replacing it with another method. (N.B. This attitude reflects a conservative attitude in society, but even if more liberal legislation is introduced, the organization of services does not keep up with it).
- The moral judgment of society. In Sweden : one should not have unwanted children, therefore recourse to abortion if contraception fails.

There are thus unconscious motivations, which in women may be closely related to instinct or based on anxiety with regard to contraceptive techniques and fear of pregnancy. Men do not make sufficient use of contraceptive methods (owing to the urge to show their powers of procreation). Conclusion : there is great complexity in the determination of motivation for abortion ; to some extent such motivation is bred by society.

Examples of requests for abortion.

- When the interval between pregnancies is too short or too long, especially if the women are working. A married woman who has children over ten years old and who is working resorts to abortion in case of unwanted pregnancy more often than a woman who stays at home. This may prove how difficult it is to look after children in families in which the wife has her own profession, in a society which leaves the responsibility for their upbringing to the mother.

- It is also possible that women who work outside the home do not like turning to domestic duties after their day's work.
- Younger women refer to social problems, a disturbed future, difficult relationships with their partner, their parents, their studies.
- Age : those over the age of thirty plead fatigue, or lack of energy.

Who resorts to abortion ?

Married or unmarried women.

Contrary to what is commonly believed, unmarried women are not the ones who resort most often to voluntary abortion. Very often it is rather married women who already have children who wish to avoid having another. 60 to 70 per cent of cases are married women, of whom a quarter have no children. The typical woman to have an abortion may be said to be married, aged 25 to 35, with one or more children.

Age

Sweden : legal abortion possible, contraception widely known. 1967 survey on 1,644 requests for abortion.

The age-groups under 18 and over 35 years were more frequent among cases of abortion than among mothers :

- 14 per cent under the age of 18 among abortion cases as against 2.8 per cent under the age of 18 who give birth to a child.
- 20.6 per cent over the age of 35 among abortion cases as aganist 8.7 per cent over 35 among those who are confined.

In the average age-group (20-29 years) there were :

- 42 per cent of the abortion cases,
- 65.2 per cent of the confinements (better users of contraception).

United Kingdom : since the Abortion Act (1968), it has been found that the percentage between married and unmarried women has stabilized : just a little over 50 per cent of married women.

But there is cause for anxiety in the fact that there is a growing need for abortion in girls under the age of 16 ; they represent 2 per cent of the total number of women, but their number has risen from 553 to 2,952 in 1971, and 70 per cent of them had not used any method of contraception.

United States : Joint Program for the Study of Abortion (JPSA). One of the findings of this study programme was that the proportion of women under 20, women without children, and unmarried women was higher among those observed by JPSA than among women who had had a legal abortion in a number of European countries. The closest similarity in percentages was in England and Sweden.

In Czechoslovakia the percentages were : 7 per cent under the age of 20 ; 14 per cent without children ; 15 per cent unmarried.

In Hungary, the percentages were similar to those in Czechoslovakia.

Another of JPSA's findings was that the younger the women were, the more advanced was their pregnancy (a consequence of their lack of experience in recognizing the symptoms of pregnancy, their difficulty in accepting it, and their hesitation to seek help).

It was also noted that unmarried women, widows, divorced or separated women and primigravidae tend to seek abortion at a more advanced stage of pregnancy.

4 - *Choice between a contraceptive measure and abortion* -

It would not seem that women seek deliberately and cheerfully to enter hospital and undergo a surgical operation. Abortion is not the result of a conscious choice by those who resign themselves to it, but rather the acceptance of a risk taken in a passive attitude. Even if the perfect contraceptive existed it would not be used by all women who wished to avoid pregnancy, because prevention on the contrary requires an active attitude and development of a sense of responsibility. The mentality of prevention can only be acquired by freeing oneself from tradition, and by education begun at a very early age in the family and later at school.

As Dr H. Michel Wolfromm has said : « A certain amount of maturity is required to adjust to the discipline of satisfactory contraception... It will be many years yet before intelligent contraception is accepted and integrated...» And Sauvy, more pessimistic, says : « Abortion requires a single decision, whereas contraception needs constant willpower. »

According to a Swedish study of young women seeking abortion : 100 per cent of those under 15 years of age do not use any method of contraception, 67 per cent from 15 to 17, and 40 per cent from 35 to 39, with an increased percentage in women over 40. The safest methods are used by women aged 25 to 34. This survey may be compared with a survey carried out among non-pregnant women (Swedish Institute for Opinion Research) : only 24 per cent of women between the ages of 18 and 30 who did not wish to become pregnant did not use any method of contraception, whereas among those who had resorted to abortion, 51.5 per cent used no contraceptive method whatsoever. And the pill was used by 3 per cent of women who had had abortions, as against 27 per cent of women in the above-mentioned survey.

The conclusions of the Swedish Commission on Abortion were that women between the ages of 25 and 34 use comparatively safe contraceptives more often than younger or older women. Thus, women who are at the beginning or the end of their reproductive life run a greater risk of having unwanted pregnancies resulting in abortion. This is probably due to lack of maturity in the former, and a desire to prove that they are still able to bear children in the latter.

According to Dr H.M. Wolfromm, unconscious motivations that come into play may cause people to accept consciously the need for a safe method of contraception while unconsciously rejecting it, and this results in failure and unwanted pregnancy.

Failure may result from an isolated occurrence - such as an unexpected happening in unusual circumstances - or may be connected with other signs of behavioural imbalance in a woman's emotional or sex life ; thus a woman who fails in all her efforts to use contraceptives may use her repeated and detested pregnancies as an excuse to pose as a victim and find in them a justification for hating her husband, or even men in general.

For a woman, the use of contraceptive measures may determine emotional reactions which in some cases may cause changes in a couple's emotional relationship. It may for instance cause a husband to fear the independence thus acquired by his wife, and to prevent her from using any method for which he is not himself responsible.

In some cases the use of a contraceptive method may cause apprehension : fear of cancer, impotence, frigidity, or mechanisms of depression which they consider sufficient justification for ceasing to use it, thereby leading to an entirely unwanted pregnancy. The method which is incriminated is not replaced by another. Thus, since there is bound to be an abortion, it must be carried out satisfactorily.

5 - *Comparison of risks of mortality entailed by the various methods aimed at avoiding unwanted pregnancies* -

Induced termination of pregnancy, carried out legally, entails a very slight risk only, but is not entirely without risk. In developed countries with adequate medical services, the risk of mortality from using effective contraceptive measures (anovulation and IUDs) is of the same order of magnitude as from abortion in hospital. Thus the risk associated with the prevention of unwanted births may be considerably reduced by combining the even moderately effective use of contraceptive measures entirely without fatal side effects and termination in hospital of pregnancies resulting from failure of a method or its inadequate application.

N.B. The risk of mortality from abortion in hospital, as given in statistics from Eastern Europe, is five to ten times less than the risk of mortality from childbirth.

Legal abortion	- immediate mortality	: 2/100,000
Childbirth	- "	: 20/100,000
Clandestine abortion	- "	: 1/1,000

6 - *Psychological aspects* -

Induced abortion even when practised legally is not always entirely devoid of physical and mental consequences. Pregnancy as an event represents a psycho-social factor which may modify all the circumstances and prospects of a woman's life. It is thus understandable that abortion may involve consequences on the psychological plane.

The majority of women who have undergone an abortion usually continue to lead a normal life, remain balanced on the personal, social and marital levels, and have children whom they bring up with affection. Mental disturbances are encountered, however; such complications are connected partly with personality factors - abortion often being simply an event which starts off action on a personality which had been comparatively balanced until then but which is predisposed to mental disturbances - and partly with current psychosocial factors which are unfavourable to preservation of the pregnancy.

The emotional stress caused by abortion may be connected with other factors than the abortion itself, particularly the age of the pregnancy, the steps that have to be taken to obtain legal permission, or attitudes of society or of the people responsible for studying the indications for abortion.

It is difficult to give a valid idea of the incidence and gravity of psychological problems connected with induced abortion, especially as they may appear at a later date. Apart from exceptional post-abortive psychoses, it is not infrequent to observe neuroses of varying degrees of intensity and of varying duration. Such neurotic disturbances are connected with the existence of feelings of guilt, hostile reactions, and feelings of frustration (3). On the clinical level they are usually characterized by mental rumination, obsessions, unconscious ideas of self-punishment, anxiety, and depression.

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The feeling of guilt has various causes :

- On the cultural plane : abortion = an offence ; moral prohibition ; the woman has not conformed to accepted principles.
- On the social plane : abortion is considered reprehensible in her environment ; concealment, and the fear of being socially rejected may lead a woman to isolation - a situation which strengthens the feeling of guilt.
- On the personal plane : she may feel more or less consciously guilty of having destroyed something which is part of herself.

Furthermore, the decision to have an abortion may be made at a time when the pregnant woman is ambivalent towards her condition. It is then the result of a decision made at a time when pregnancy is rejected, and this may be regretted later on.

As a reaction to such feelings, a woman may develop - unconsciously as a rule - the habit of searching for punishment (loss of the right to be married or to have a child), or on the other hand she may develop the need to prove to herself that she is still capable of conceiving. This may be one of the causes of repeated pregnancy and abortion.

A feeling of hostility disturbs a woman's relationship with men. Especially if the woman has been abandoned, this feeling may extend to the male sex as a whole. This may cause disorders in sexuality and secondary frigidity. Post-abortive sterility may lead to serious mental trauma (an intense feeling of guilt and hostility).

A feeling of frustration is connected with the fact that although abortion is wished for consciously, it runs counter to a deep desire in some women to prove themselves through motherhood.

It is extremely difficult to quantify the gravity and frequency of complications, in view of the lack of precision in criteria for mental illhealth used in the various surveys, as well as the wide variety of circumstances in which legal abortion is practised. There are thought to be mental sequelae of some importance in 10 per cent of cases, with distinct impairment of mental health in 1 per cent of cases. The psychological results are more serious when considerable time elapses before the decision on abortion is known, because it depends on complicated administrative machinery (as in Sweden).

On the other hand, abortion causes very little psychological damage when it takes place in the first few weeks of pregnancy :

Sweden (1968) : 43 per cent of the legal abortions were carried out before the 12th week.

England and Wales (1969) : 65 per cent - - - - - -

Eastern Europe, in Czechoslovakia (1968) : 99 per cent (of which 62 per cent in the first 8 weeks) ; it is required by law to be carried out before the 12th week.

The rôle of cultural factors (legal, social) in the origin of mental disturbances is obvious. But the legalization of abortion does not automatically lead to elimination of psychological complications. This is a progressive process (cf. the continuation of clandestine abortions in Eastern European countries).

7 - *Methods which may reduce the number of abortions* -

7.1. - Free access to contraception, disseminated without restriction, together with educational activities undertaken at all levels (in hospitals, in private medical practice, in factory clinics, agricultural estates, armed forces medical services, and in associations such as youth syndicates, etc., as well as in schools, and above all through parents).

7.2. - Emotional and sex education for responsible parenthood, tendency towards a better attitude to contraception, training of medical and paramedical staff.

7.3. - Liberalization of abortion. This is the characteristic example of Yugoslavia : Berislav Beric considers that evolution is accomplished in four phases, taking into account general social and economic development, the medical services, biological factors, and the evolution of ethical and legal concepts.

- First phase : illegal abortions prevail. There is no organized service for contraception. A small number of town-dwellers practice contraception. It is the period of intolerance and legal prohibition.
- Second phase : illegal abortions decrease without any change in the total number of terminations of pregnancy. Contraceptive services are developed, though the effect of their activities is not yet felt. It is a period of legal tolerance and of liberalization of abortion.
- Third phase : there are less clandestine abortions. The action of contraceptive services makes itself felt, and the total number of abortions decreases.
- Fourth phase : contraception is widely practised. The total number of abortions is much less, and clandestine abortions have almost entirely disappeared.

Another example is the establishment of centres for assistance to mothers, as practised in Denmark where abortion is permissible for humanitarian, eugenic, and medico-social motives. Teams made up of doctors (gynaecologists, psychiatrists), jurists, and social workers work in these centres, where 50,000 cases a year are treated : 9 out of 10 unmarried mothers and 1 out of 5 married women with children apply to them. Half the cases are sent by their general practitioner or midwife.

These centres have extensive means at their disposal : they help to solve administrative and legal problems ; they provide financial aid ; they assist women by action for affiliation, « moral support », adoption, contraception, abortion, supervision of infants, and education.

A woman who comes to these clinic sessions is received by a social worker who, in the interview, leaves the young woman free to express her difficulties and her fears, but also gives her concrete information. A pregnancy test is carried out, which eliminates those who were panic-stricken but not in fact pregnant. The woman is given a second appointment a week later. If she maintains her decision, her case is presented to a committee which ratifies her decision, and this in almost all cases. But there is also a reciprocal agreement between doctor and patient to give and to use an effective method of contraception.

It should be noted that the rôle of the «committee» is to listen to the woman and help her to understand herself. Abortion is not an insignificant act, the committee is there so that she makes the decision alone and with full knowledge of what she is doing, so that she does not afterwards go into a depression or regret what she has done. Emphasis is laid on moral responsibility towards the act of childbirth.

Conclusion

Abortion is a failure. By association in one centre all the problems connected with reproduction and sexuality, supervision of successful pregnancy, contraception, and abortion, the latter - which is a failure - should be seen as part of the whole process of responsible motherhood. This whole should help integrate a woman in society rather than temporarily casting her into the shadows and into ill-health, where she cannot help suffering from an inferior situation which is bound to alienate her.

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CHAPTER IV

PREGNANCY AND CONTRACEPTION IN ADOLESCENCE

J. P. DESCHAMPS *

The incidence of pregnancy in adolescents is on the increase in almost all countries of the world, and is becoming a serious public health problem. Like neonatal medicine, it is the meeting-place of obstetrics and paediatrics, where social workers, educators, psychologists, and all those who are concerned with community health also meet.

1 - *Pregnancy in adolescents - Recent aspects* -

Biologically possible, and in the past accepted in many cultures, pregnancy in adolescents is nowadays considered as one of the symptoms of «maladjustment» in young people, because of the very great difficulties it causes for the young mother, for her child if it comes into the world, for the family, and also for doctors and social workers. The problem is a new one in its quantitative aspect, but more especially because of modifications in social and family structures, and also because of the importance given to the age-group of «adolescence».

Around 1950, the United States experienced an «explosive» increase in the number of pregnancies in adolescents. At the present time, one American child in four is born of a mother under the age of 20, one in ten of an adolescent under the age of 18, and one in three hundred of an adolescent under the age of 15. These figures seem to be stationary for the time being.

In Great Britain, the number of births involving mothers under the age of 15 was unchanged until 1955, then increased fivefold between 1956 and 1966 (Russel) ; every year, one in every three hundred adolescents under the age of 16 becomes a mother. The change in legislation on abortion in 1967 brought about comparative stabilization ; out of every thousand pregnancies occurring before the age of 15, there are 570 voluntary abortions.

In France, the situation is different ; there does not seem to have been the sudden increase noted elsewhere. The rates, however, are very little lower : 7 per cent of children are born of a mother under the age of 20, and one in three hundred of an adolescent between 10 and 16 years. At the present time girls under the age of 20 are the only age-group whose fertility is not decreasing.

The comparative stability of these figures seems to be in contradiction with the much lower age of unmarried mothers now being received in hostels and homes for mothers, as well as with the recent experience of social workers, doctors, and schoolteachers. Heads of schools and school medical-social teams indeed place in the early

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1970s the appearance of a phenomenon which until then was practically unknown to them, and which they consider to be on the increase. This means that there are new elements which have brought into the open a problem that was previously hidded : the extension of compulsory schooling up to the age of 16, and the changes in family structure allowing less «tolerance» towards a pregnant adolescent are most probably responsible for revealing its existence.

2 - *A phenomenon with manifold causes* -

2.1. - *Biological factors* -

In the past century, in Western Europe, the average age of puberty has dropped by nearly five years, and girls become pubescent nearly a year earlier, on average, than did their mothers. It is estimated (in the United States, but the facts are identical in the other developed countries) that a hundred years ago 13 per cent of girls were fertile at the age of 17, whereas 94 per cent are today at the same age. The general improvement in living conditions, health, and nutrition - shown in the «secular trend» of growth - has brought about earlier fertility and a reduction in the number of spontaneous abortions.

It is, however, an irony of human history that the age of social maturity comes later, now that the age of biological maturity comes earlier than before. Adolescence springs from this contradictory movement, and is a period which is essentially ambiguous and paradoxical. Pregnancy occurring in an adolescent is the incarnation of the paradox of adolescence : the existence of an adult's biological capacity side by side with the lack of ability to shoulder the social responsibilities which should logically go with it.

2.2.-*Assessment of sexual behaviour in young people* -

Although all statistics are bound to be misleading, it is clear that sexual relationships between young people now begin at an increasingly early age. It is often the opinion among the general public, and even among professionals, that the sexual behaviour of adolescents is an expression of the moral depravity of youth. Experience in fact shows that it results from the deep desire for a relationship, which cannot always be expressed otherwise than in a physical sense ; it also results from a wish for immediate pleasure - rarely fulfilled, at any rate for girls - which is stimulated, apart from certain characteristics inherent in the adolescent temperament, by a general «atmosphere» and a wish to conform socially for which adolescents are not responsible.

2.3. - *The rôle of the social environment* -

Some adolescent girls are more vulnerable than others : the family and social environment plays a major rôle here, either in the probability of pregnancy occurring, or in the attitude of family and friends if pregnancy does occur, and in the decisions then made by the family and the girl herself.

The first impression, from published studies and everyone's experience, is that pregnant adolescents often come from a social environment which is underprivileged both materially and culturally and lacking on the educational plane, and from families which are insecure in their constitution. It is obvious that these deficiencies constitute all the risk factors of educational and social maladjustment. In more privileged social groups, pregnancy in adolescents is less frequent : in such groups it is easier to use contraception, and probably easier also to resort to abortion. Furthermore, well-to-do families can more easily conceal the problem created by pregnancy in an adolescent.

2.4. - *Special risk factors* -

Rape of adolescent girls is undoubtedly frequent, but its incidence is difficult to establish ; sometimes sexual assault is alleged a posteriori, and sometimes, though it has taken place, it is hushed up.

Incestuous relationships are also frequent. It is believed by some that 3 per cent of pregnancies in young girls are certainly the result of intercourse with a member of the family, but it is noted that in nearly half the other cases the man responsible is unknown or declared as such. Others consider that 28 per cent of adolescent pregnancies in which the procreator is known are the result of incestuous intercouse. Noël and colleagues, in France, believe that one quarter of «difficult» adolescents admitted to a rehabilitation institution have had incestuous relationships.

Prostitution of adolescents, sometimes at a very early age, is increasing. In a study made in France, 41 per cent of the prostitutes studied who were under age had at least one child, and one in four had had at least one abortion.

Mental deficiency is a high risk factor of pregnancy in adolescents. Two eventualities must however be clearly distinguished here : a mentally handicapped adolescent girl - a mongol for instance - is an easy prey for sexual assault ; her protection and sex education pose very specific problems. On the other hand, apart from these serious handicaps, mental deficiency is not more frequent among adolescent girls faced with the problem of pregnancy than among others.

3 - *The pregnant adolescent* -

Two characteristics of the future adolescent mother are at the root of the many medical and social problems that we shall review :

- age : the future mother, by definition, is not an adult woman ;
- civil status : the future mother is usually unmarried at the time of conception.

3.1. - *Age* -

The future mother is an adolescent, with the problems specific to that period.

a) Growth. Physiological maturation is not completed. The possibility of fertilization does not mean that as soon as she reaches puberty a girl is capable of going through pregnancy successfully and bringing up a child. « Puberty should not be confused with nubility, that is to say the capacity for the procreation of normal healthy children without harm to the parent » (Larousse dictionary). It is considered that it takes five years after menarche for a girl to be biologically fit to conceive and bring up a child. Physical growth is not completed, and nutritional needs are considerable, greater than those of an adult woman. There are also special qualitative needs, and these are often not met since adolescents usually have very bad eating habits.

b) Psychological and emotional problems. These are very numerous. The frequency of mental deficiency is often stressed. A mentally deficient adolescent is certainly very vulnerable, but the rôle of mental deficiency should not be exaggerated ; most adolescent mothers have normal intelligence.

A pregnant adolescent is still mentally immature, and finds herself in an ambigous position. At an age when she is seeking her own identity, and when the desire for independence and the need for dependence are in conflict, pregnancy introduces a particularly delicate situation. The adolescent mother is still a child in some ways, but is suddenly thrown into the adult world without being ready for it and - which is worse - by a means of which adults disapprove. A pregnant adolescent is the expression of a psychological contrast, and this contrast is also found, as will be seen, in society's attitude towards her. At an age when the body image has to be readjusted - often with some difficulty - the change in the body connected with the development of pregnancy causes yet further difficulty for an adolescent girl. It is not surprising, therefore, that attempted suicide is more frequent in pregnant adolescents than in the population group of the same age as a whole.

c) Educational and social problems of a pregnant adolescent are particularly acute. In the society in which we live, social education is not completed at the time of adolescence. In nine cases out of ten, the pregnant adolescent is still at school. Usually her pregnancy forces her to leave school, either under pressure from those around her, or (more often) because the school expels her.

In the United States, pregnancy is the most frequent physical motive for adolescent girls being expelled from school, or giving up their studies of their own accord. Many schools, in all countries, consider that a pregnant girl spoils their moral reputation and gives a bad example to her schoolfellows. She is therefore expelled, often without there being any ruling to this effect, and even if the problem of looking after the child has been solved ; such decisions are justified by trumped-up medical reasons.

Away from school, out of contact with other young people of her own age, with no means of working towards a profession in which she could use her talents though she may potentially be very gifted and might have achieved a high level of education, the pregnant teen-ager runs a great risk of becoming socially maladjusted a little later on. We shall return to this later.

3.2. - *Civil status* -

The girls is unmarried, her pregnancy is illegitimate, and this illegitimacy results in unfavourable reactions from the society in which she lives. In developed countries too - illegitimacy is the overall characteristic of pregnancy in young girls, even though it is also a social phenomenon involving adult women.

In France, in 1971, 7 per cent of all births took place outside marriage ; the proportion was 73 per cent when the mother was 15 years old, and 18 per cent at 19 years of age ; 23 per cent of the illegitimate births involved mothers under the age of 20 (out of 6.6 per cent of all births). In Sweden, for the same year, 21.6 per cent of births were illegitimate. Even in countries with a stable rate of illegitimacy, it is noted that an increasing proportion involves very young adolescents, amounting to as much as 50 per cent in some American statistics.

At the same time as many illegitimate births, there is a much higher proportion of extra-marital conception. In Sweden and in the United States, more than half the marriages between students take place after the start of pregnancy ; in France, the proportion of births which take place less than eight months after marriage increased from 19 per cent in 1960 to 26 per cent in 1970. The psychological and social problems of illegitimacy disappear temporarily as a result of such marriages to « regularize the situation ». In the long term, however, these marriages are often not very enduring : in the United States, divorce is much more frequent in couples married before the age of 20 ; its rate is as much as 50 per cent. When illegitimacy reaches such proportions, it is no longer a problem which affects a certain number of adolescents, but is of concern to society as a whole and its way of life. It should indeed be stressed that an increasing number of stable unions are to be observed which are not sealed by marriage ; this stability is unfortunately rare in couples under the age of 20.

It should also be stressed that illegitimate pregnancy may reflect a form of reaction specific to a psychological conflict. Many authors, such as Marbeau-Cleirens in France, and Rouleau and colleagues in Canada, have studied the rôle played by the subconscious in determining pregnancy in an unmarried girl, where « the baby only exists as a symbolic representation of something that is lacking, competition, or self-punishment ». Such an attitude is however less frequent in adolescent girls than in young adult women. Some people consider that it is important not to « over-psychiatrize » pregnancy in teen-agers : adolescence is a critical period in which conflict situations are frequent, quite apart from pregnancy. Finally, some pregnancies in adolescents are quite deliberate, « planned » for instance to achieve, through the possibility of an early marriage, the means of escaping from a family or institutional life which is uncongenial.

The attitude of society to an adolescent's illegitimate pregnancy illustrates the contrast already mentioned earlier, and described so well by Margaret Mead. Harrison, in Canada, talks of « the hypocrisy of a society that forgives (an adolescent girl) her sexual activities, but condemns her pregnancy ». Society does everything possible for the greater sexual freedom of young people, but remains moralizing and repressive towards the consequences of such freedom.

It is true that appearances are sometimes deceptive. We proclaim the rights of the young unmarried mother and her child, we provide an increasing quantity of forms of institutional aid. But it is inadmissible to develop solutions to health and material problems without taking sufficient account of the educational and emotional needs ; behind activities which are undeniably generous there may be hidden a certain kind of rejection, which leaves a less guilty feeling and in fact gives us a clear conscience. Is it not significant that in 1974 a French television programme which was intended to make known the problems of unmarried mothers was entitled « Histoire d'une faute » (Story of a misdeed) ?

4 - *Pregnancy and birth* -

4.1. - *High-risk pregnancy* -

These are high-risk pregnancies because of the conjunction of various risk factors : the early age of motherhood, primiparity, illegitimacy, and an underprivileged social environment. The essential factor of vulnerability is, in fact, the lack of medical supervision. Very often the pregnancy is not reported, or else it is reported late ; in Great Britain, 10 per cent of pregnancies in adolescence are kept secret up to the time of delivery.

There are many reasons why pregnancies are not reported or supervised : they may reflect rejection of pregnancy, or the fear of announcing it to family and friends ; on the other hand an adolescent may in all good faith be unaware that she is pregnant for a long period ; ignorance of the formalities to be observed may also be an obstacle for a girl who feels isolated and does not always find medical and social staff willing to give her a sympathetic ear and be available as she needs - this is a general problem in adolescence ; it may also be the refusal of any social allowance, or fear of the doctor - in the United States it is reported that pregnancy is the first time many adolescent girls have an interview with a doctor - fear of long delays, and waiting in out-patient clinics. Finally, in some countries regulations do not permit the health services to give an adolescent a gynaecological examination without the consent of her parents.

4.2. - *Pathology of pregnancy* -

Anaemia and nutritional disorders are particularly common, because of the maternal needs which are still high and the inadequate food absorbed by many adolescents: in Canada, Claman indicts a diet made up of hot-dogs, potato crisps, cakes and coca-cola. According to Percy, in the United States, no other population group is as vulnerable to the ravages of malnutrition as pregnant adolescents and their children. Adequate nutrition is absolutely necessary for the normal prenatal growth of the foetus, and for its future mental and physical development. Adequate nutrition is absolutely necessary for the health and wellbeing of the adolescent mother.

Many authors consider that the incidence of nutritional disorders in pregnancy justify systematic additions to the diet : vitamins, iron, folic acid, and calcium.

The risk of toxaemia is stressed, in most studies, as being six times higher than in cases of pregnancy in adult women. Figures given are as high as 15 per cent at the age of 16, and 25-30 per cent at the age of 14 or 15. Other studies give lower figures, comparable with those of the general population : this is because adequate medical supervision of pregnancy, when it can be achieved (for instance, as part of special programmes, institutional or otherwise), does away with or reduces the vulnerability of pregnant adolescents to toxaemia.

Maternal mortality is extremely low at this age. It does however exist, and it is pointed out in the United States that 6 per cent of female deaths at 18 and 19 years of age are due to complications of pregnancy and childbirth.

4.3. - *Childbirth* -

Opinion among authors is divided with regard to childbirth ; here again, the prognosis depends on the availability and the quality of prenatal supervision. The application of forceps is frequent, as is episiotomy. Duration of labour is extremely variable ; many authors consider that it is no longer than the time usually observed in adult primiparae. Caesarians are less frequent in adolescents, except in very young girls of 12 to 14 years old because their pelvis and genital tract are insufficiently developed.

4.4. - *Perinatal pathology* -

Prematurity is more frequent than for the population as a whole, with rates varying from 15 to 26 per cent according to the studies. It is estimated in the United States that 35 per cent of premature infants are from the 7 per cent of mothers under 20 years of age. Prematurity rates may be more than 30 per cent in very young girls, or when pregnancy occurs less than two years after menarche. They are also very high in cases of repeated pregnancies in mothers under 20 years of age. As for obstetrical pathology, these rates fall when the pregnancy has been properly followed up.

Perinatal mortality is high, and largely connected with prematurity, with figures varying between 35 and 67 per cent, but going down to 20 per cent if supervision of pregnancy has been adequate.

The risk of malformation increases threefold in adolescents, doubtless due to the conjunction of several factors, including nutritional deficiencies and consanguinity connected with incest.

5 - *The prospect for mother and child* -

5.1. - *The child* -

The child of an adolescent mother is also particularly vulnerable. Such children are delicate, and are two or three times more exposed than others to the risk of sudden infant death, or any other cause of death during the first year of life. Frequent prematurity increases the risks of motor or sensory damage and of mental deficiency.

In most cases (85-90 per cent of cases), a mother keeps her child at birth, even of she knows that there is a possibility of early abandonment followed by adoption, but this fact does not necessarily indicate a good prognosis. In a French study by Marzo-Weyl, a group of young unmarried mothers were interviewed ten years after leaving a home for unmarried mothers : only 32 per cent of the children were still with their mother, and the same percentage had ended up in Social Assistance services for children ; 6 per cent of the mothers had had their child adopted early, and the author notes that these were the ones who had made a « good impression » during their stay in the home : for a mother who is conscious of the difficulties she will have in bringing up her child, abandonment may be the means of ensuring that it will be given affection and security in an adopted family.

When a mother keeps her child, she must have effective family or institutional support if she is to manage to overcome the problems of caring for and educating her child at the same time as dealing with her own economic and social difficulties. Without help, the young mother is soon overwhelmed by a task that is beyond her ; the child is put in hospital for any small ailment, placed in a family or a community, taken back, dragged from one nursery to another, and finally ends up in a home for neglected children.

Under such treatment, the child may well suffer from serious mental and emotional disorders, later becoming a maladjusted adolescent ready to repeat the mistakes of his or her over-young parents. Thus it is that in hostels for unmarried mothers in France, 30 per cent of the inmates are former wards of Social Assistance services for children.

5.2. - *The mother* -

An adolescent mother may well find her future seriously jeopardized by her motherhood. Coming from a simple background, unlikely to be able to continue studying, obliged to find an unskilled job, without much hope of promotion, she will have tremendous difficulty in getting away from a mediocre social status, and so will her husband if she is married.

The future of the family is not much more hopeful. About half the young mothers marry within a few years after their motherhood, but this does not put an end to their difficulties. In the study by Marzo-Weyl, already mentioned, twenty-two mothers out of forty-two had married (five of them with the child's father) ; of the others, four had turned to prostitution for their livelihood. The marriage is often unstable : out of a hundred young women followed up by Sarrel over a five-year period, thirty-six married, but only nine were still living with their husband five years later ; sixty of the hundred mothers were entirely dependent on help provided by Social Assistance.

The most serious aspect of the prospect facing an adolescent mother is the risk of further pregnancies close upon one another and early multiparity, either legitimately or outside marriage. This risk is very great ; according to several American studies, between 20 and 60 per cent of pregnant adolescents have another child before school age is over (18 years), or within two years of the first birth. In a cohort of girls aged 15 years followed up in Baltimore between 1959 and 1961, Dempsey showed that for an adolescent who is already a mother the risk of pregnancy is nearly ten times higher than the risk that exists for multiparae. If social circumstances are also taken into account, the risk is sixty-eight times greater for adolescent mothers from a simple background than for a multipara from a well-off family.

Knowing the considerable risks involved in multiparity for mothers under the age of twenty, and the future facing these young women - who still have twenty-five years of fertility ahead of them - and their children, it seems clear that the solutions sought must not be concentrated only on avoiding pregnancy in adolescence, but must be concerned actively with those who already have a child with the aim of helping them to avoid the vicious circle from which they cannot escape by themselves : repeated pregnancies, impossibility of carrying through school and professional education, material poverty, inability to integrate into society.

6 - *Preventive measures* -

Preventive action with regard to pregnancy in adolescence may be considered, as is now traditional in prevention, at three levels :

- primary prevention : to avoid the occurrence of pregnancy in adolescence;
- secondary prevention : to ensure that if pregnancy has begun it develops satisfactorily, both for the mother and for the unborn child ;
- tertiary prevention : to assure the future of mother and child, and avoid further pregnancies.

6.1. - *Primary prevention* -

6.1.1. Sex and family education. There is a tremendous amount of work to be done here, in relation to pre-school children, schoolchildren, parents, and adolescents themselves. R. Lenoir has said, in connexion with maladjustment in young people, that « what is most seriously lacking in our society is education - of the mind and of the feelings. These young people are showing us the fundamental deficiencies in our way of life ».

The medical profession has an important rôle to play here. Too often adolescents reject entirely all the services that society tries (sometimes clumsily and not disinterestedly) to offer them. According to his attitude, a doctor may be refused as belonging to the camp of moralizing and intolerant adults, or on the other hand he may be accepted as being a neutral person to talk to, a lawyer rather than a judge, an impartial adviser, who does not moralize or repress.

It has been shown that in Toronto, 20 per cent of the consultations requested by adolescents are concerned with sexuality, contraception, and venereal diseases - subjects which were hardly ever touched upon a few years earlier. This proves the evolution there has been in the expressed needs of adolescents, and also the confidence they have in health personnel ; it is up to the latter to show themselves technically and psychologically capable of dealing with it.

6.1.2. *Contraception for adolescent girls.*

a) General problems. As in other countries, French law (the law of 4 December 1975 and the decree of 6 May 1975) now authorizes contraceptives to be prescribed to young people under age, without the need for their parents' authorization and without a lower age limit. It seems logical that any adolescent, being biologically capable of establishing a sexual relationship, should be informed on contraceptive methods and able to decide to resort to them if need be.

It is not always easy for health personnel to prescribe contraceptives to an adolescent. Some indeed refuse to do so, believing that this opens the door to all manner of abuse and to an increase in venereal diseases ; others on the contrary suggest doing so, even if they have not been asked : both these extreme attitudes have their dangers. It is better on the one hand to include information on contraception in sex education and preparation for family life, and on the other hand to take advantage of a request for a contraceptive to give further information on the subject. If a contraceptive is proposed hastily an adolescent, who expects a great deal from health personnel in this field, may well be disappointed in them. Although the parents' authorization is not imperative, it is a good thing to create a dialogue and agreement between young people and their parents whenever this is possible.

b) Methods. Hormonal contraception may be used in adolescence. However, incidents resulting from an immature hypothalamo-pituitary response are found more frequently than in adults. These disadvantages are connected mainly with oestrogen-progestogen combined contraceptives in « normal » doses. Low-dose pills are often preferable. They are just as effective, and in spite of minor drawbacks are safer with regard to their side-effects on the hypothalamus and blood lipids. Three-monthly injection of progestogens, on the other hand, produces even more frequent complications than in adult women. Postcoital administration of oestrogens may be used in certain cases, but it is preferable to use prostaglandins.

- Intrauterine devices (IUD) have been used for adolescents mostly in the United States. Here again, complications or incidents seem to be more frequent than in adults, and the risk involved always needs to be weighed against the risk of pregnancy. IUDs may be indicated in cases of high risk of pregnancy (young prostitutes or married adolescents), or following abortion or childbirth in certain adolescents.

- Mechanical methods are not very popular with adolescents : the diaphragm is a nuisance, and the male preservative is not much liked by the young partners.

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The latter method, however, might have many advantages : it is a protection against venereal diseases, and possibly against cervical cancer, of which several recent studies have shown the highest incidence in women whose sex life began very young. The condom also has the merit of requiring a young man to be aware of his responsibility in the sexual act and its possible consequences, and to have better self-control : this is probably why it is so seldom used, but its use should be encouraged.

- The temperature method is worth explaining to every adolescent girl : it is a good way of helping her to understand her body. No great expectations should be set on its effectiveness as a contraceptive method, however, for the sexual relationships of adolescents cannot easily be made to conform to the constraints which it imposes.

-"Traditional" methods - coitus interruptus, vaginal douche - still find favour with young people, in spite of their lack of efficacy.

c) Resistance and failures. Contraception for adolescent girls has two main difficulties : firstly, many adolescent girls who are well-informed and have freedom of choice do not use contraception even though they have a very active sex life ; secondly, there is a much higher failure rate connected with the use of contraceptives by adolescent girls than by adult women.

It seems likely that rejection and failure both relate to a common determinant, of a psychological nature, which is compounded by the uncertainty surrounding the behaviour of adolescent girls, who often refuse to accept the discipline and regularity required to take an oral contraceptive, especially when sexual relations are infrequent, irregular, and... largely unplanned. As Pasini says , « it is paradoxical that the pill is useful for normal girls with mature affectivity and the ability to integrate sexuality with it, in accordance with cultural ideology ». On the other hand, « the pill will be of no use in the cases for which it is most needed, that is, for adolescents who are temperamentally unstable or negligent, and not very gifted intellectually ».

This shows the difficulties of contraception for adolescents, the need to include information on the subject in overall sex education, and the duty to help young people choose the best way of achieving it in the light of their personality, the nature of their sex life, and the risks of unwanted pregnancies incurred.

6.2. - Secondary prevention -

This comes in once pregnancy has started, in order to avoid complications and unfortunate consequences for mother and child. This is also where induced abortion has to be placed, since it is no longer a question of primary prevention. In some countries, pregnancy in an adolescent constitutes a legal reason for termination of pregnancy. Thus in Great Britain, after the Abortion Act, there was a great increase in abortions in girls under the age of sixteen.

Quite apart from the philosophical and moral problems involved, there are actual disadvantages in resorting to termination of pregnancy. Many studies have shown the mental trauma it causes in an adolescent girl, which is often more serious and more of a source of guilt than the pregnancy itself, especially since the girls involved - as recalled recently by Hudon and colleagues in Canada - are psychologically more delicate.

The American Academy of Paediatrics takes a very guarded position with regard to abortion in adolescents :

- abortion must never be used to replace preventive or contraceptive measures ;
- it is often experienced with great guilt by an adolescent girl, all the more dramatically because she is often isolated, separated from her family, and emotionally unbalanced ;
- the physician should be the girl's « lawyer », and help her to consider all the alternatives, without any coercive or punitive attitude ; the adolescent must be brought to make her own decision as to how her pregnancy should develop ;
- if termination of pregnancy is chosen, the physician must ensure that the medical and especially the psychological conditions are optimal ;
- the decision to terminate pregnancy does not put an end to the rôle of the « lawyer » : he must attend to the girl's orientation, her social readjustment, the continuation of her schooling, and her professional training.

We would add that it is quite unjustifiable to put pressure on an adolescent to lead her to abortion against her will, or not to inform her - if she has made the decision herself - of the possibilities open to her for continuing her pregnancy satisfactorily. If she is given emotional, medical and social support, there are no clear psychological or psychiatric reasons in an adolescent's pregnancy to justify an abortion.

Measures aimed at encouraging the evolution of pregnancy. Braen, in the United States, defines three objectives for such measures :

- to increase the chances of normal pregnancy and childbirth, and protect the health of both mother and child ;
- to help the adolescent to solve the problems which led to her pregnancy, or which result from it ;
- to help the adolescent to continue her schooling during pregnancy and after the birth.

Such a task can only be undertaken in a multidisciplinary context. It may be done through a specialized integrated programme, of which scores exist, for instance, in the United States. It may be done through less formal arrangements between medical staff (paediatrician, obstetrician, school doctor, etc.), social worker, and schoolteacher. The activities may be carried out within the framework of an institution or in the community. In any case, school attendance in a normal establishment is preferable to special schools for pregnant adolescents.

The activities undertaken during pregnancy must be sure to include particularly a psychological preparation for childbirth and education in the rôle of a mother. Such measures are extremely effective : this has been seen in relation to obstetrical pathology. Their benefit on the human plane is equally great, and prepares the future for both mother and child.

6.3. - *Tertiary prevention* -

There are several ways of ensuring that the mother - or the young parents - and the child have a satisfactory family and social future ahead of them.

Early adoption of the child, and thus its abandonment by the mother, may be a satisfactory solution if the right psychological preparations have been made. It leaves the mother with less of a sense of guilt than does an abortion, and is a pledge of material and emotional security for the child. It is obvious that no pressure should be put on a pregnant adolescent to make her give up her child against her will ; on the other hand it is equally dangerous to oppose abandonment if this is being considered by the mother, and even more so if it is what she wishes, and to force her to keep a child whom she wanted to have adopted.

If the mother keeps her child, she needs to be helped, and this is the logical continuation of the activities undertaken during pregnancy. Whether she returns to her family or goes to a hostel for unmarried mothers, a young adolescent mother must be able to prepare herself for her integration in the adult world, and at the same time devote the necessary care and affection to her child ; she cannot do so alone. Like all adolescents of her age, she must also be able to have leisure and liberty. It is often difficult to obtain this delicate balance, but it is absolutely essential for the mental health of both mother and child. Finally, every effort will be made in any case to avoid the occurrence of a second pregnancy close on the first ; for this she will need educational care, emotional support, satisfactory social integration, and possibly the use of a contraceptive method decided upon by the adolescent herself.

All this means that pregnancy in adolescents represents a difficult problem for a large number of health and social workers and schoolteachers ; the elements for its solution can only be effective through prolonged action, undertaken as a team, always bearing in mind the basic needs of the adolescent and her child. A great deal remains to be done, may be new types of action need to be found, and most certainly an effort needs to be made by everyone towards availability and understanding of the problems of adolescence.

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CHAPTER V

STERILITY AND INFERTILITY

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Before approaching the study of problems raised by sterility and infertility, it is essential to clarify the meaning of these two terms, which might rightly be considered as synonymous. In fact, sterility is the inability to fertilize the ovum with a spermatozoon, and infertility is the inability to ensure that the fertilized ovum develops so that a viable child is born.

The first problem for the gynaecologist is to distinguish which cases correspond to which of these two situations. We have indeed no direct clinical criterion enabling us to recognize that fertilization of the ovum by the spermatozoon has taken place ; signs such as lateness of the menstrual period, prolonged temperature elevation, gravidic vaginal smear, or positive biological tests of pregnancy, are essentially proof of production of chorionic gonadotrophin and eventually of the increased secretion of progesterone which results, and thus of the existence of a trophoblast which has entered into contact with the maternal tissues and circulation. Consequently they imply implantation of the fertilized ovum. If for one reason or another the ovum, though fertilized normally, is not implanted in the uterus, and if a deterioration - hereditary or otherwise - of one of the germ cells causes the fertilized ovum to degenerate before differentiation of the trophoblast (which excludes any possibility of implantation), there will be nothing to show that fertilization actually took place, and the physician will conclude that it is sterility when it is in fact infertility.

This being said, it may be postulated that the conditions of sterility and infertility raise four types of problems : medical (diagnosis and treatment), psycho-emotional, moral, and social.

1 - *Sterility* -

It would be tedious and beside the point to review the various causes of sterility and the methods of investigation used to discover them, but it is useful to emphasize the important gaps which exist in our examination techniques, and of which we are aware, without underestimating those of which we do not yet know and that the future will reveal.

In order for a child to be conceived, there must first be a fertilizable ovum. The fact that ovulation has taken place can be established by temperature curve, vaginal smear, or biopsy of the endometrium ; but these indicate secretion of progesterone, and thus the formation of corpus luteum. Daily doses of gonadotropin LH in the blood enable ovulation to be identified by the characteristic peak, but the response of the ovary is neither systematic nor necessarily perfect. Furthermore, nothing is ever known of the quality of the ovum provided ; it may be unsuitable for fertilization. An insufficiency of corpus luteum, shown by temperature curve, vaginal smear, biopsy of the endometrium, concentration of pregnandiol in the urine, and progesterone blood rate, by preventing implantation is not really a cause of sterility, but rather of infertility. Furthermore, it is not impossible that an excess of oestrogen in the luteal stage (acting in the same way as the « morning-after pill ») may sometimes jeopardize implantation despite a normal quota of progesterone. It is generally admitted that 42 per cent of cases of sterility originating in the woman have an ovarian aetiology (25 per cent disorders of ovulation, and 17 per cent insufficiency of corpus luteum).

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If the ovum is to be fertilized, it must be drawn into the infundibulum, and if it is subsequently to be implanted it must reach the uterine cavity. Insufflation, hysterography, and coelioscopy will make it possible to check the permeability of the oviduct, absence of a film surrounding the ovaries, or adherences partitioning the pelvis. But even when everything is normal, the more or less systematic catchment of the ovum by the oviduct implies that a mechanism is set in motion which is still imperfectly understood, and its eventual failure may explain cases of sterility which have not apparent cause. The rôle of tubal secretion in keeping the ovum fertilizable before its encounter with the spermatozoon, and in its nutrition during the early stages of its development, is still almost completely unknown. It is thus impossible to be sure that the sphincter at the utero-tubal junction plays its rôle correctly and causes retention of the ovum in the oviduct for several days, the period required for the syncitiotrophoblast to be in the process of differentiating when the blastocyst comes into contact with the endometrium. It is generally admitted that tubal lesions are responsible for 30 per cent of cases of sterility of female origin ; an average of 15 per cent are operated directly or after conservative therapy has failed, 10 per cent are treated solely by medical means, and 4 per cent are immediately considered incurable.

We do not know what makes the spermatozoa ascend, and this may be due simply to the laws of chance, bearing in mind that the disordered activity of the male gametes is necessarily directed and channelled by the tubular form of the organs in which they are deposited. But if there is in fact a system directing the movement of the spermatozoa towards the oviduct, the absence of one of the directing signals, whatever its nature, could lead to blockage at some point and absence of fertilization.

Even if all other circumstances are favourable, the mobility of the spermatozoon can be checked by physical obstacles (hyperviscosity of the vaginal glair) or harmful actions (hyperacidity of the vagina, or microbial toxin). In this field, however, there are many unknown factors ; pregnancy may take place after treatment of an apparently mild endocervicitis, and women whose cervix is ulcerated, purulent, and covered with microabcesses may show every sign of normal fertility. As far as I know, no systematic study has ever been made to elucidate the behaviour of spermatozoa in the presence of the various microbial species, or to determine in what way infection carries out its deadly action. Cervico-vaginal causes are considered to be responsible for 9 per cent of female sterility.

The importance of immunological phenomena, antispermatic antibodies found in the serum of sterile women, is not clearly established ; they are thought to play a rôle in about 5 per cent of sterile women, and in 40 per cent of those whose ovarian, tubal and cervical functions have been found to be normal.

Extra-genital hormonal factors (diabetes mellitus, dysthyroidism, adrenal hyperandrogenism) are recognized in 5 per cent of cases.

When the means of investigation used have revealed nothing abnormal in either partner, which happens in about 10 per cent of cases, mental factors are sometimes suspected of entering into the aetiology of sterility. No explanation is proposed, however, concerning the mechanism of this mental influence ; tests prove that it is not a block in ovulation ; is it then a fault in catchment of the ovum by the oviduct, are the spermatozoa rejected or do they go astray, or is it the onset of menstruation in spite of implantation ? One guess is as good as another, since there is nothing to go on.

2 - *Infertility* -

As soon as fertilization has taken place, the problem is no longer one of sterility but of infertility.

Repeated miscarriages, which are the usual manifestation of infertility, may have two different aetiologies :

- ovular : the pregnancy is not viable because of a deterioration of the ovum (late fertilization) or of the spermatozoon (morphological abnormality), caused by a hereditary defect affecting one or other of the gametes ; in these conditions the pregnancy first dies and then is expelled by the uterus after a varying period of time ;
- maternal : the pregnancy is normal and perfectly viable, but is rejected alive by the maternal organism. It is important to be able to distinguish between these two forms of infertility, but if the clinical context sometimes speaks for itself (miscarriage with an ovular origin is almost unnoticeable, consisting of the chance loss of the ovum after a slight brownish flow ; miscarriage of maternal origin is dramatic, accompanied by heavy haemorrhage and painful uterine contractions), diagnosis is often difficult, particularly when the defect leads to lysis of the foetus while preserving the normal growth of the trophoblast (the miscarriage appears to be of maternal origin), or when malnutrition of the ovum leads to progressive degeneration of the trophoblastic villi (the miscarriage appears to be of ovular origin).

All the ova, or only some of them, may carry a genetic defect incompatible with normal embryogenesis. When the karyogram of products of spontaneous miscarriages is made, chromosome aberrations are found in about 50 per cent of cases. Are these abnormalities always the reason for termination of pregnancy, or may they sometimes be artefacts resulting from tissues damaged by a long agony in the uterus starting to culture ? Geneticists are divided in their opinions. The correlation found between the state of the embryo and the type of chromosome deteriation confirms the importance of the genetic factor as the initial cause, but does not exclude the exceptional possibility of an abnormality secondary to cellular distress.

Intra-ovarian maturation of the female gamete, up to meiosis and ovulation, is doubtless sometimes disturbed. Successes recorded following treatment with gonadotrophins FSH and LH give hope that this possibility exists. It is probable that in the woman meeting of the ovum and the spermatozoon may be delayed by chance, by various hormonal conditions, whether pathological (hyperandrogenism) or therapeutic (antiovulatory or anabolic), or by inflammatory lesions of the oviducts ; the late fertilization of this senescent ovum might be responsible for the ensuing miscarriage.

The hormonal factor is certainly the most frequently advanced. We shall not linger over dysthyroidism (hyper- or hypo-), diabetes mellitus (open or latent), or adrenal dysfunction (androgen or glucocorticoid) ; these affections are easily identifiable if the appropriate analyses, clinical tests, and hormone assays are carried out ; furthermore, adequate means of treatment are well codified nowadays, and are usually effective.

Insufficiency of corpus luteum, confirmed by temperature curve, vaginal smears, biopsy of the endometrium, and excretion of pregnandiol, leaves the endometrium ill prepared for implantation ; the fact that the blastocyst cannot obtain the nutritive substances which are essential to it during the first few days following implantation will be fatal.

Hormonal imbalance during the first three months of pregnancy, demonstrated by temperature curve, vaginal smears and hormone assays, raises a particularly difficult problem. A fall in sex hormones is usually a sign of distress and agony of the ovum, and not the cause of this distress. It is thus useless to expect any tangible result by simply giving substitutive therapy aimed at restoring the hormone balance which has been disturbed.

The supra-optic nuclei of the hypothalamus secrete oxytocin, which is afterwards sent towards the post-hypophysis, and eventually released into the bloodstream. Theoretically, excessive production of oxytocin can stimulate the myometrium abnormally and cause either rhythmic contractions with expulsion, or prolonged contracture with asphyxia and death of the ovum. This mechanism is sometimes suggested as an explanation of miscarriages following violent emotions, but it is clear that stress involves many other hormonal, vascular, or nervous disturbances.

Mechanical causes are, in our opinion, one of the most frequent and most important. They take place mainly in what we have called the « pressure uterus » (« utérus à pression »).* In a normal womb, the competition between growth of the ovum and resistance of the myometrium always causes a growing intra-uterine pressure which goes through a peak between six weeks and two-and-a-half months of pregnancy, then is reduced and stays at about 10 mercury mm between four-and-a-half months and term. When the uterus has a diminished capacity at the outset (infantilism, malformation, or myoma), its wall begins to stretch earlier, at a time when hormonal influence is still very strong. However, this circumstance has most probably very little effect ; what is important is that, at the same time, the physical constants (elasticity) and receptivity of the myometrium to hormones are affected by the presence of a higher proportion of immature fibres (infantilism), of conjunctive tissues (malformations), and of abnormal structures (myoma). As a result, parietal resistance to distension is increased, and intra-uterine pressure rises to an abnormal extent. The pregnant woman's systolic pressure is not modified, and as it meets an ever-increasing intra-uterine pressure the maternal blood has increasing difficulty in reaching the ovum ; this leads to progressive asphyxia, a drop in hormone production by the trophoblast, and finally death of the pregnancy. It is thus possible to foresee that hormone therapy, associating progesterone and oestrogens, is very likely to be effective as long as it does not seek simply to restore the disturbed hormone balance but tries, with the use of massive doses of drugs, to overcome the myometrosis of receptivity, and normalize the physical constants and tissue growth in the uterine wall.

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* Rev. franç. Gynéc., 1967, 62, 9 : 437-439.

Another mechanical cause is slackening of the uterine isthmus. In this case, the system for closing the uterine cavity is congenitally deficient, or has been damaged during a previous miscarriage or delivery. During the development of pregnancy, the cervix will dilate without any contraction taking place and without any increase in intra-uterine pressure. If the denuded membranes resist, the product of conception flows out through the incompetent cervix ; if the amniotic sac breaks owing to necrosis or microbial corrosion, contractions take place after a varying length of time, and the miscarriage takes place in two stages. After the indispensable cerclage procedure by Shirodkar's technique, progestogens may be useful to compensate for the excitation caused by the bond and by the cervical-corporeal reflexes which the procedure causes.

Insufficiency of uterine blood flow during pregnancy is considered by some to be a cause of spontaneous miscarriage ; it is attributed to abnormalities in the number, calibre and structure of the spiral arteries from which the utero-placental arteries are derived ; it leads to anoxia and then death of the ovum, and thus the clinical symptomology is identical in every detail to that observed in cases of hyperpressure. Furthermore, a uterus suspected of parietal rigidity has also every reason to have a deficient vascular system ; uterine infantilism goes together with thinness of the arteries ; malformations are accompanied by a poor irrigation of the fundic spur or of the internal edges of the uterine horns ; myoma is associated with thickening of the artery walls and reduction of lumen. In addition, intensive hormone treatment is capable of promoting vascular development and establishing a sufficient blood flow ; by this expedient it might therefore prove to be perfectly effective in the prevention of spontaneous miscarriage. In the ischaemia to which the ovum is subjected, it is difficult to judge how much is due to intrauterine hyperpressure and how much to insufficiency of the arterial system, but it would appear certain that the two factors come into play simultaneously. Serious renal insufficiency and arteritis following juvenile diabetes which has been developing over a long period are other circumstances which may reduce the uterine blood flow and endanger the normal development of pregnancy.

Apart from the fact that the proportion of the various tissues (contractile and inert) of which the uterus is made up may be upset (as is the case in a « pressure uterus »), it may also happen that the concentrations of the biochemical constituants of a tissue are modified. At all times except in pregnancy the human myometrium contains 16 mg of contractile protein (5 mg of actomyosin and 11 mg of free myosin) per gram of fresh tissue. Under the essential influence of oestrogens, the synthesis of these substances is progressively accelerated during pregnancy, so that at term a rate of 22 mg has been reached (13 mg of actomyosin and 9 mg of free myosin). Simultaneously the oestrogens stimulate enrichment of the myometrium in glycogen, and consequently in energizing phosphates formed during glycogenolysis (triphosphate adenosine directly, creatine-phosphate or phosphagen secondarily). It sometimes happens that a uterus already contains an abnormally high concentration of contractile material and energizing reserves at other times than in pregnancy ; or that a hyper-oestrogenic environment at the beginning of pregnancy accelerates the formation of these substances ; or else that a disturbance in the ionic balance of the maternal organism increases the efficacy of a normal hormonal impregnation (certain heavy ions such as Ca and Mg intervene as catalysers or inhibitors of the enzyme reactions of synthesis). However, for the latent power thus created to be used prematurely, it is further necessary that the myometrium be either abnormally excitable (a deficiency of progesterone) or abnormally stimulated (an excess of oxytocin). The biochemical abnormality in question may have existed since the first pregnancy ; it may also be created during sucessive pregnancies which are not followed by a complete return to the usual situation in a non-pregnant woman, but causes progressive enrichment of the myometrium. This leads from full-term birth to premature delivery, and then to earlier and earlier miscarriages. In hypercontractility with a biochemical cause, treatment with massive doses of progesterone alone is formally indicated ; it will not in any way modify the concentration of contractile material and energizing phosphates in the uterine wall, but it will prevent the use of this potential strength by controlling hyperexcitability.

Endocervicitis, on the other hand, is a factor which should not be neglected; it may eventually lead to early miscarriage by ascending endometritis, but it is more often responsible for late miscarriage by microbial corrosion ot the membranes, early rupture of the amniotic sac, and deferred release of efficient contractions. This last eventuality is sometimes confused with incompetent cervix because it happens about the same age of pregnancy, but it differs from it as much as hypercontractility of biochemical origin, which has been mentioned above. Endocervicitis is treated by electrocoagulation between pregnancies.

In the past syphilis was considered to play an essential rôle in the origin of habitual miscarriages ; its importance is reduced nowadays to much more modest proportions, but it is nevertheless still indispensable to make systematic screening for this disease by Wassermann's reaction.

Listeriosis has recently been mentioned as a frequent cause of spontaneous miscarriage, but further studies are needed before its true importance can be determined.

Smoking also carries with it at least theoretical risks : the oxytocic power of nicotine is well demonstrated, and from this point of view a cigarette is said to be equivalent to 50 milliunits of vasopressin both in its antidiuretic effect and in stimulating the smooth muscle fibres.In addition to its direct effect, it is thought that nicotine increases the effectiveness of circulating oxytocin. However, there is as yet no proof that smoking is responsible for habitual miscarriages ; the furthest one can go is to consider that it may lead to premature delivery.

It has not yet been possible to explain completely the fact that in mammals a graft in the maternal endometrium of the foreign tissue which indubitably makes up the blastocyst is invariably successful. Does the woman, who is capable of producing antibodies against spermatozoa which reach her through the genital tract, sometimes produce them against the embryo which originates partly from the male gamete and approaches her by the same route as it does ? Can immunological factors be responsible for detachment of the ovum ?

This review of possible aetiologies of habitual miscarriages is probably incomplete, but it must be accepted that in infertility, as in sterility, there is no effect without cause. No pregnancy terminates without reason, and the frequency of unexplained cases is in inverse ratio to the competence of the gynaecologist and the number of investigations carried out.

3 - *Psycho-emotional problems* -

The physician who has before him a sterile couple must be aware of two things : (1) they have probably made a success of their marriage on the social, intellectual, emotional and physical planes, which is uncommon enough, and wish to solder this success by having a family ; (2) they have complexes and are ready to admit their responsibility in the existing situation. Care must therefore be taken not to endanger the understanding that exists between the partners, and not to increase their mental distress.

If a young married woman has blocked oviducts as a result of an induced abortion before she was married, she should not be told : « That is at the root of all the trouble ». A young girl who has sexual relations is generally sentimental and imagines a definite proof of love where her partner sees only an opportunity for satisfying his instinct; it is the eternal contradiction which makes deep feeling push the woman to give herself and inclines the man to respect. These youthful errors sometimes cause a guilt complex in the woman that it is useless to foster.

Similarly, if the man has azoospermia as a result of gonococcal urethritis contracted during his military service, this experience makes him feel equally guilty and it is useless to dwell on the cause-and-effect relationship.

Whatever may be the true origin of their sterility, the partners must have the feeling that they share the responsibility, and that, properly cared for, they have more chance together than either of them would have, without treatment, with an entirely normal partner. Investigation of sterility must bring together the elements of the couple, and not give them the idea that it would be in their interests to separate.

4 - *Moral problems* -

These are particularly problems raised by artificial insemination. This may be carried out either with the husband's sperm as treatment of marital hypospermia or vaginal or cervical incompatibility, or with the sperm of a donor. Insemination with the husband's sperm is usually well accepted by the couple ; it is essential however to ensure that the husband is present and keeps the sperm under his visual control from the moment he gives it to the physician until the moment it is injected into his wife's uterus. In case of success he must have no doubt of his paternity. For this reason any attempt to enrich it by centrifugation, which implies transporting the sperm to a laboratory, is to be avoided.

Insemination by hetero-donor raises a more delicate problem : (a) it is one-way, to the sole benefit of the fertile wife of an azoospermic husband, without the possibility of proposing to the normal husband of a sterile wife the solution of extra-marital fertilization ; (b) it favours the mother's hold over the child, by allowing her to contest, openly or tacitly, the authority of the «father» ; (c) it hurts the susceptibility of the man who finds it difficult to accept contact between his wife and a foreign sperm, even through the medium of a syringe. One must be sure - but how can one be ? - that the wife will continue to be grateful to her husband for having allowed her this pregnancy and will identify this gesture with fatherhood ; otherwise the time will come when she will say : «Leave this child alone since you were not capable of begetting it». It must be ensured that the husband's acceptance is not a result of blackmail by his wife, otherwise his hostility towards the intruder will soon show itself.

It is essential that the donor should remain completely anonymous, preferably for the physician as well ; this is only possible through the creation of sperm banks where the samples are recorded by elements such as race, physical characteristics (colour of hair), or intellectual characteristics (social class), blood group, etc., but without retaining the personal identity (name, etc.) of the donors. Affective transfers from the mother to the donor are obviously more to be feared than demands from the donor concerning a child conceived without his knowledge.

Affirmation of complete and indisputable sterility should be avoided, first of all because scientific data only rarely back this up, secondly to guard against the consequences of extra-marital relations, and finally in order to be able to create a valid doubt by mixing the husband's sperm with that of the donor. When the psychological context is favourable, insemination is undoubtedly the best solution for male sterility ; it prevents the couple's problem from being shouted from the roof-tops ; they are indisputably the natural parents not only for the family and the neighbourhood, but also for the child itself.

Adoption has the advantage of setting the parents on an equal footing, and ensuring social promotion of abandoned children, but this artificial family situation is necessarily known by those around them and soon by the child, and conflicts of authority in adolescence are more frequent.

5 - *Social problems* -

We shall only touch on these. The repercussions of involuntary sterility and infertility on the demographic expansion of a nation are difficult to judge, but are certainly not negligible. Since it is agreed that the growth of world population is alarming from the quantitative point of view, the problems of childless couples might be considered to be unimportant. However, the association of effective contraception and correct treatment of cases of sterility can improve the overall quality of children's upbringing, by avoiding overburdening on the one hand and exploiting motivation on the other. The interests of the individual, which it would be unthinkable to sacrifice, thus serve the general interest, at least from the qualitative point of view.

A beneficial result is the possibility of saving the products of involuntary fertility through adoption. In Belgium, in order to adopt a child, the future parents must be at least 30 years old, and fifteen years older than the child they want ; they must also have been married for five years and have no children of their own. Allowances are made, however : thus, if the husband and wife are under 30, they may be given a child under the provisional guardianship of the president of « Famille adoptive belge », and may adopt it legally later on. Later adoption, after a child has been placed in a public assistance institution, is very much a second-best, for there the child is given a group upbringing which cannot correspond to the environment in which he or she will have to live. The ideal for adoptive parents, as well as for adopted children, is that adoption should take place shortly after birth, as soon as they have been abandoned by their natural mother. It is also essential that adoption should be effectively protected by legislation : some sensational cases which have recently taken place in other countries prove that in this field things are far from perfect.

SPERM BANKS IN FRANCE

G. DAVID * & F. CZYGLIK**

Introduction

The first successful results in conserving sperm specimens by cryopreservation were obtained in bovines in 1950. Since 1953, cryopreservation has been applied successfully to human sperm. These results were achieved in the United States, but were in fact based on the discovery by Jean Rostand (1946) of the protective effect of glycerol against cell lesions caused by cold.

From 1963 onwards, an important technical improvement was introduced by using liquid nitrogen, which further increased the possibilities of conservation. Thus a number of Sperm Banks were quickly developed, first in the United States and then in Japan.

France came into this movement somewhat late. It is easy to see the reasons for this. Sperm conservation implies, for its use, recourse to artificial insemination, but this, especially in its extra-marital form when it is based on the use of a donor's sperm, was for a long time subject to disapproval which led to a kind of moral prohibition and prevented it from being practised officially. This condemnation did not stop its practice altogether, but this was barely tolerated as it was clandestine and therefore fairly limited. In a psychological context such as this, the creation of Sperm Banks led implicitly to the recognition of artificial insemination, and thus was automatically met with a barrier. On the other hand, however, it could be considered that sperm conservation offered an opportunity to set out the whole problem of artificial insemination in a new way.

This approach led us to submit to the authorities a proposal whose acceptance made it possible to open the first Centre for Study and Conservation of Human Sperm (Centre d'Etude et de Conservation du Sperme humain - CECOS) in 1973 at the Bicêtre Hospital (Paris). Subsequently other centres were developed in the main regional hospital centres in the provinces under the same name and according to the same principles (1, 2 and 3).

The originality of this policy was due primarily to the change of attitude towards sperm donation. But it was also due to all the care taken to enable the results to be checked on the psychological as well as the technical plane.

We shall have the opportunity of developing this concept by considering successively the aspects of conservation and of insemination.

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1 - *Sperm conservation* -

1.1. - *Technique* -

Sperm specimens are obtained by masturbation, at the Centre. After liquefaction, obtained in about twenty minutes, a mixture is made, in equal parts with the medium of protection which consists essentially of glycerol (adjusted to a final concentration of 7 per cent) and egg yolk (this compound completes the protective effect by a mechanism so far incompletely understood).

The whole is distributed in little plastic tubes known as « straws ». They contain 0.25 ml which, according to the richness of the sperm, represents between 6 and 18 million spermatozoa per dose. The straws are sealed and identified. They are subjected to fall in temperature by being immersed first of all in liquid nitrogen vapours, and then in liquid nitrogen. Thus within about ten minutes they pass from an ambient temperature to -196° C (Figure 1). For the stability of their conservation, the straws must remain constantly and totally immersed until they are used. The technique is thus comparatively simple, but the handling as a whole, and especially the storage of the various straws, which are obviously not interchangeable from one donor to another, require very great care.

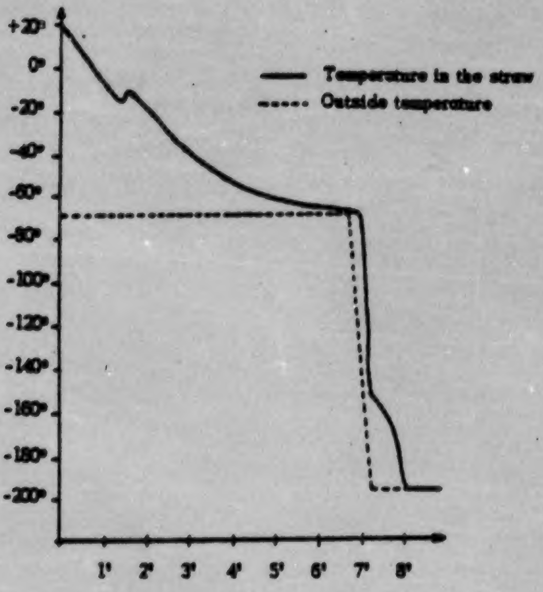

Figure 1

Variations in temperature during cooling process.

Permanent conservation implies a constant watch on the level of liquid nitrogen in the conservation containers. Accidental thawing, even if it lasts only a few minutes, can lead to destruction of the straws concerned.

When they are needed, the straws are taken out of the liquid nitrogen. In a few moments at an ambient temperature they are thawed and insemination can be carried out in conditions to which we shall return later. Immediately after thawing, it is possible to see under a microscope the spermatozoa progressively recovering their mobility.

1.2. - *Tolerance to cryopreservation* -

In spite of all the precautions taken, freezing constitutes a shock for the spermatozoa, and causes some of them to die, or at least to lose their mobility. This deterioration usually affects about 30 per cent of the spermatozoa which were initially mobile (Figure 2).

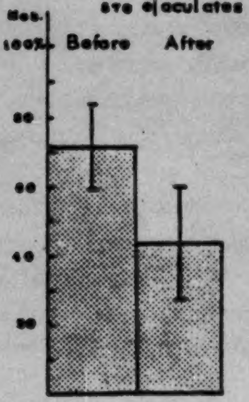

Figure 2

Motility before and after freezing-thawing.

$$\text{Percentage of recuperation (PR)} = \frac{\text{Final motility} \times 100}{\text{Initial motility}} = 60.23 \text{ per cent}$$

If all the spermatozoa from the same ejaculate do not tolerate freezing in the same way, this is all the more so from one sperm to another, or more precisely from one individual to another. Such unequal tolerance is well known in the human species. We have been able to show (4) that on the whole tolerance to freezing depends first of all on the initial quality of the sperm : normal sperm have good resistance, whereas the percentage of loss is very high in sperm where the spermatozoa are insufficient in number, motility and morphology.

1.3. - *Duration of conservation* -

The length of time they are kept does not appear to affect the tolerance of spermatozoa to cryopreservation. Thus, the same percentage of loss of motility is observed after a few hours or a few months of conservation.

Nevertheless it must be asked whether there is not a limit to the duration of conservation, and what this limit is : whether a few months, a few years, or a few decades. At present it can be stated that stability is acquired for four years, but it is probable that with further experience we shall find that the limit will be extended and that we shall be thinking in decades instead of years.

1.4. - *Indications for conservation* -

There are three types of conservation :

1.4.1. Conservation with a view to AID (artificial insemination with donor) : this is quantitatively the most important activity. The methods will be discussed in the paragraph devoted to AID.

1.4.2. Conservation with a view to AIH (artificial insemination with husband's semen) : here the conditions are quite different. It may be a question of preventive auto-conservation used when a man's fertility is threatened as a result of a serious illness which requires the application of a sterilizing treatment (X rays, chemotherapy). This type of indication is developing fairly rapidly because of the increased use of chemotherapy in the treatment of cancer. The improved results obtained in these diseases justify such concern to prevent sterility.

Vasectomy may also be preceded by conservation. In the United States, where this practice is widely used for contraceptive purposes, it was this indication which gave rise to the development of Sperm Banks which are devoted almost exclusively to this type of activity ; owing to the prices charged it is particularly profitable. In France vasectomy has not yet been officially accepted, with the exception of cases where there are precise medical indications.

Finally, autoconservation can be used in the treatment of certain types of male hypofertility. Theoretically, indeed, it could make possible the «enrichment» of sperm with a low concentration by putting together the product of several ejaculates. Unfortunately, as we have already seen, poor sperm are the least able to tolerate freezing. The obvious use of this technique in such cases justifies the development of active research to improve conditions of conservation.

1.4.3. Conservation with a view to biological utilization : basic or applied studies on sperm run up against the heterogeneity of this biological product from one individual to another. Conservation offers the means of having available with flexibility sperm whose different characteristics are clearly defined.

This enumeration of the various indications shows that the already considerable rôle of Sperm Banks is likely to become even more extensive in the future.

2 - *Rôle of the «CECOS» centres in the practice of artificial insemination* -

2.1. - *Insemination with donor (AID)* -

The CECOS centres form the organizational structure on which the practice of AID is based. They are established in public hospital centres, and more precisely in university hospital centres.

This does not mean that the private sector is excluded from the practice of AID. Indeed, the rôle of CECOS centres can best be explained from this point of view by comparing them with transfusion centres : the latter are established in hospitals, but they are available indiscriminately to the private and public sectors.

The rôle of the CECOS centres, however, goes beyond that of transfusion centres in that they retain responsibility for indication and control of the results. The carrying out of AID is left to gynaecologists, and no distinction is made as to whether they belong to the public or the private sector ; the only condition is that a protocol of use be respected.

Let us now consider in greater detail the rôle of CECOS centres in AID.

2.1.1. Donation of sperm : the new policy of the CECOS centres. In the former practice of insemination with fresh sperm, the donor was generally a young bachelor : he was always paid.

The policy of the CECOS centres, on the contrary, has laid down as a basic principle that the donation must be free, in the same way as donation of blood, or of any organ. It is in fact a great mistake to pay the donor, as this leads to depreciation of this act. Without going so far as to call the donor in such a case a « prostitute of onanism » (G. Marcel), there is no doubt that payment indicates compensation for an act to which personally one would not lend oneself. The argument that it is effective, sometimes put forward to justify payment, is therefore not valid. Payment depreciates the act and condones lack of interest in the subject by the general public, whereas in reality the solution lies in an increasingly collective responsibility for this duty of solidarity.

The second principle which has been laid down is donation by a married couple. Donation is only accepted from married men (under 45 years of age) with the agreement of their wives, and who already have one or more children. This requirement is not only intended to ensure that the donor is fertile, or even to provide greater guarantee against the possible risk of passing on a defect. The full significance of this principle lies on the moral plane. As parents, the married couple are able to approach the problems involved with greater maturity. Their eventual acceptance denotes not only their generosity, but equally recognition of the legitimacy of the sterile couple's request. When informed of these provisions, the requesting couples are usually very appreciative of them, and realize that beyond the donation itself they are in fact being given moral encouragement.

This concept has yet another consequence which is important on the psychological plane. Insemination has often been accused of being almost a form of adultery because of the rôle played more or less consciously by the donor. If the concept of donor is replaced by that of donating couple, and the concept of receiving wife by that of receiving couple, the image of adultery and guilt traditionally connected with AID is very considerably attenuated.

A policy which gives up the easy method of a paid donation in favour of a free donation is bound to run into difficulties at first, especially as the subject is one which cannot be approached with the public as freely as that of blood donation. It is therefore not surprising that at present there are insufficient donors to meet the demand. Another reason for this is that the CECOS centres insist on very limited utilization of the same sperm, and avoid going beyond four or five pregnancies for any one donor, in order to leave a wide margin of safety with regard to risk of consanguinity.

Although this strict attitude may act as a brake, it is at the same time, however, an element of development. This policy has the merit that its aims, conditions and terms can be put before the public. By calling for the donation of sperm, it confronts all fertile couples with the problem of AID, and helps to give a better understanding of this solution and to gain its acceptance. Thus it may be permitted to hope that AID will be rehabilitated in public opinion.

2.1.2. *Indication for AID.* The principal indication is male sterility. Even so, one must be certain that such sterility is irreversible. This is simple when the case is one of azoospermia which is not caused by either a curable hypogonadotrophism or possibly by reparative surgery.

But beside these simple cases, one is more and more frequently confronted with requests connected with very considerable insufficiencies of sperm, whether in quantity or in quality. Before taking any action, it is important to make further very precise check-ups to make sure that the aetiology is not curable. Above all it is important to consider the possibility of sperm enrichment, to which we shall return in connexion with AIH.

A second group of indications is concerned with genetic risks. When in a married couple the husband is liable to pass on a dominant hereditary disease, or when he may contribute to bringing out a recessive disease, AID obviously enables this risk to be eliminated. However, this type of indication should be carefully weighed in the balance, and in each case the opinion of geneticists should be sought. Great prudence is required before such a request is accepted, on the one hand because AID is only logical if it is certain that oterwise there will be no procreation by the husband, which implies strict male contraception or even in extreme cases sterilization ; on the other hand, and more important, because by degrees this type of indication could lead to more or less open eugenism. And it goes without saying that sperm banks must avoid favouring any measure connected with eugenics.

We are often asked if we would accept a request from a woman alone. For the time being the reply is negative, because it is considered that the psychological environment offered to the child in such cases involves too great a risk of instability.

This leads to consideration of the problem of contraindications of a psychological nature. Although each requesting couple is required to submit to an interview with a medical psychiatrist, this interview is in no way considered as a test intended to dismiss certain requests. It is clear that in the present uncertainty concerning the true psychological problems connected with AID, which may arise at various periods of time after the birth of the child, it is impossible to set standards or lay down directives. Except in cases of obvious behavioural pathology, no contraindication of a psychological nature is made to a request.

On the other hand, observation of the couple before and after the birth of the child is intended to provide a better understanding of the consequence of AID, and to help in the eventual establishment of a profile of «couples at risk».

2.1.3. Practical modalities of AID. The CECOS centres have responsibility for the choice of donors in accordance with the characteristics of the receiving couple. This « adaptation » operation is also conducted on a principle which is diametrically opposed to the classical method which was based exclusively on the husband's characteristics. This may be summed up as «the rule of exact likeness». Even if it was applied with a certain laxity, it contributed to making the couple experience a substitution which depreciated the husband to some extent.

Here again, we consider that this operation should be placed in the setting of the couple. The choice of donor must respond to a single principle : not to introduce a hereditary morphological trait which does not exist in the couple, that is to say, in one or other of the partners : for instance, it is obvious that if the mother is fair-haired and her husband brown-haired, there is an equal choice between a fair-haired or brown-haired donor. If such reasoning is applied systematically to each morphological trait, the image of a double is destroyed. This is of course also true for blood groups (these are limited to the ABO system and Rhesus).

It is left to the gynaecologist to perform the insemination, though as far as possible a fairly precise protocol must be applied. This protocol involves in particular the use of a single dose of sperm during the first two cycles. In this way it is possible to make a precise analysis of success factors in the woman (for instance, the day in the cycle, the state of the cervix, hormone balance) as well as in the man (number and quality of spermatozoa). From the third insemination cycle onwards this single dose rule is no longer applicable, and the gynaecologist is free to use any dosage.

Transport of the sperm is the responsibility of the couple ; it is transported in small containers of liquid nitrogen which can be kept for up to five days.

At the moment of use, the straw is taken out of the liquid nitrogen. Only a few minutes are needed to warm it up. After cutting off one end, it is introduced into the insemination appliance, which enables the injection to be made directly without having to change from one receptacle to another. Insemination is performed slowly through the cervical duct.

2.1.4. Results. Contrary to what one might think, and especially to what the couples hope for who have recourse to it, AID is far from being 100 per cent successful. The figure of 50 per cent is nearer to the truth, but it represents only an overall result.

Many factors are indeed involved, first and foremost the age of the woman. Success is also dependent on a certain amount of perseverance in case of failure during the first few cycles. Thus the success rate may be nearly 70 per cent in the case of women under 30 years of age who have persevered for more than six cycles.

These preliminary results can probably be improved upon. For this purpose the following prescriptions have been laid down : first, to follow a precise protocol, and secondly to record and make a statistical analysis of the data in each file : this has been done in close cooperation with the statistical unit of INSERM* (Professor Schwartz). The application of AID in these scrupulously careful conditions must make it possible to gather information which will help to improve results ; in addition, valuable study material is being collected for the study of certain factors of human reproduction.

The results obviously also need to be scrutinized just as much from the psychological point of view. In each CECOS Centre, a team of psychiatrists and psychologists work closely with the gynaecologists to study the couples at the time of their request, during treatment, and - an aim which it is more difficult to attain - to follow up the children born by AID.

2.1.5. Legal problems. In French legislation, AID is unrecognized : it is neither authorized nor forbidden, and as a result there are no regulations for it.

The consequences of this practice for descendants are however obvious, and cannot leave jurists indifferent. Thus a law reform was proposed in 1953, to declare unacceptable denial of paternity for children born through artificial insemination : but in the end this provision was not accepted.

It is probable, however, that several elements will give rise to legislation on this subject in the near future :

- first of all, the extension of the practice of AID, as a result of sperm conservation ;
- furthermore, the new psychological and ethical conditions for its application within the framework of the regulations which the CECOS centres have set themselves;
- finally, the 1972 modification of the law on filiation which, though it has set aside the concept of a child of adultery and has retained only that of a natural child,

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has on the other hand extended the possibilities of action to deny paternity. Thus, the previous consent of the husband would not be enough, in present conditions, to prevent action later on to deny paternity.

Furthermore, it would be desirable to have regulations establishing the conditions of establishment and functioning of Sperm Banks, not only to avoid dispersal and wastage of the various means to be used, but also to give users the maximum technical and moral guarantees.

As we have seen, such centres also provide « material » of exceptional value for research purposes. But any study in which such files are used raises problems of retaining secrecy, which is an essential part of the guarantees which must be given to both requesting and donating couples. We have overcome this contradiction by establishing two files : one « manual », with identification, which remains at the CECOS Centre and is treated as absolutely confidential ; the other « computerized », which includes all the data under a completely anonymous code number. This file, used by the statistical unit of INSERM, provides the data for the global analysis of activities in the technical and medical field.

2.2. - *Artificial insemination with husband's semen (AIH)* -

We have already discussed the rôle of the CECOS centres in what may be called autoconservation (that is, conservation before a sterilizing treatment or vasectomy). With regard to the use of sperm in such cases, the technical problems are the same as for AID ; there are practically no psychological problems. The rôle of the gynaecologist is thus of the greatest importance, since the centres simply provide him with doses of sperm following a completely free treatment schedule.

There is however one last category of indications which concerns the CECOS centres more directly, and that is assays to improve « insufficient » sperm. In such cases, the sperm is submitted to various methods of handling : concentration, sorting of spermatozoa, direct pharmacological action, whether or not followed by conservation. Cases arising from such possibilities are very frequent, and certain tests conducted with perseverance have led to quite an encouraging percentage of success (5).

Conclusion

The purely technical progress which is sperm conservation has made it possible, through an organizational framework at national level, to take up the problems of artificial insemination on an entirely new basis.

More time and perspective will be needed to make a considered judgment of the results of this undertaking ; they will need to be analysed from the ethical and psychological as well as from the biological and clinical points of view.

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CHAPTER VI

BREAST-FEEDING AND FAMILY HEALTH

MATERNAL AND CHILD HEALTH AND BREAST-FEEDING*

A. PETROS-BARVAZIAN**

Maternal and child health and breast-feeding could be considered from the viewpoint of the many interrelations the various aspects of lactation and breast-feeding have with the health problems of mothers and children, the health and other social services that need to be provided for them and the implication for training of the workers as well as the general public. This paper is limited to consideration of the relationship of breast-feeding to the main health problems, i.e. major causes of mortality and morbidity of mothers and young children in the world.

1 - *Main causes of maternal and childhood mortality and morbidity in developing areas* -

During the last decade, maternal and childhood mortality rates have been steadily decreasing in most areas of the world (48,49). In many countries, however, the levels of mortality remain high and less progress has been made in reducing morbidity and improving the health and quality of life of mothers, children and families. Thus, one cannot assume that if a child survives then he must be well, or that if general levels of maternal mortality have declined, maternal morbidity has been similarly affected. In fact, studies of children who have survived the hazards of the first years of life show that while mortality rates are falling, many health problems remain unsolved and that there is some evidence that many children are not attaining their full developmental potential because of adverse environmental factors before and after birth (51).

The major health problems of mothers and children and high rates of mortality and morbidity, on a world-wide basis, result from three interrelated conditions : malnutrition, infection, and the consequences of illtimed, closely spaced, and too frequent pregnancies without necessary health care. These problems do not occur in isolation from other unfavourable social and environmental factors. They are often associated with poor sanitation, low educational level, and poor socio-economic conditions, including scarcity of health and other social services. Breast-feeding has an important relevance to all these interlocking maternal and child health problems.

After the neonatal period, the main causes of death of infants and young children in developing areas, as reported by official statistics, are attributed to infectious diseases, mainly diarrhoeal diseases and respiratory infections. Analysis of causes of mortality from 37 countries, mainly developed, has revealed that pneumonia, congenital malformations and diarrhoeal diseases contribute together to 58 p.100 of total post-neonatal mortality (49). It is now a well-known fact that in the majority of deaths attributed to infection, nutritional deficiency is an associated cause of death. The interaction of malnutrition and infection has been increasingly clarified in the past decade (41, 50). The Inter-American Investigation of Mortality in Childhood by the use of the multiple cause approach in analysis of the causes of death revealed that of the total of 35,095 child deaths under 5 years of age in 15 projects, 57 p.100 were due to nutritional deficiency and low birth weight. Among 32,826 deaths under 5 years in 13 Latin American projects combined, 35.2 p.100 had a nutritional deficiency as an underlying or associated cause, and, moreover, in 60.9 p.100 of deaths related to infectious diseases, nutritional deficiencies were an associated cause (39, pp.164, 167, 184). Thus, the synergism of malnutrition and compounded effects of repeated infections is responsible for much of the high mortality among infants and pre-school children.

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The complex of malnutrition and infection is further aggravated by the consequences of unregulated fertility without adequate health care. When child-bearing starts very early in a woman's life, even before she has completed her own growth, it incurs well-known risks to the mother and to the outcome of pregnancy, including the increased proportion of babies born with low birth weight.

A study of mortality and morbidity in young children in the Punjab in India (52) has shown marked differences between the infant and childhood mortality levels in closely-spaced pregnancies. Children in a group of 1,479 births in 11 Punjab villages in India were followed as cohorts by monthly visits until they had either died or survived the second year of life. Rates for both neonatal and infant mortality were high for infants born less than 2 years after a previous birth. The Inter-American mortality study mentioned above has shown that in Recife, which had the highest birth-rate among the 15 projects studied, more than half of the deceased infants were of the fifth or higher birth order while only 13 p.100 were first births and 13.9 p.100 second births (39, p.249). This study has also shown that the more serious the malnutrition of mothers, the more uncertain the future of their children and that the greater the number of offspring, the more serious the risk to the mother and her child. The impact of timing, spacing and limitation of pregnancy upon the health of the mother and child has been extensively reviewed (35).

Breast-feeding will now be considered in relation to the three main causes of mortality and morbidity mentioned above. After a brief reference to the frequency and duration of breast-feeding in various geographical and cultural settings, the paper will focus attention on the interrelation of breast-feeding and lactation to reproduction reflecting the present increasing interest in this topic. The discussion about the relationship of breast-feeding to infection and the nutritional status, growth and development of the child is limited since these areas have been well-covered in this symposium and elsewhere : Harfouche (17) and " The Uniqueness of Human Milk " edited by Jelliffe and Jelliffe (21).

2 - *Incidence and duration of breast-feeding* -

A review of some of the published information from various parts of the world recently was carried out by Thomson and Black (44) showing a marked variation in incidence and duration of breast-feeding. A selected number of these studies is summarized in Table I. This work indicated that, despite the large volume of published information on the incidence and duration of breast-feeding in various settings, relatively few reports

Table I. Selected recent reports on the incidence and duration of breast-feeding in various parts of the world[1]

Country	Sample	Breast-feeding (BF) behaviour
Czechoslovakia	393 infants in Prague	69% BF less than 2 months [25]
England (London)	mixed population attending child welfare clinic, 1965–68 (No. = 504)	41% BF, of which 77% BF for less than 3 months [38]
Italy	1,013 infants in Gorizia	67% wholly or partly BF for 4 months [8]
Norway	2,000 mothers of healthy term infants	96% completely or partly BF on discharge from hospital; at 3 months 28% still BF [24]
Scotland	national sample, 1965 No. = 3,743)	85% of infants never BF or BF for less than 1 month [1]
United States of America	returns from 2,928 maternity hospitals for healthy babies	18% wholly and 9% partly BF on discharge from hospital [31]
Colombia	1,412 babies of 200 mothers attending clinics	Average duration of full BF 3.5 months [34]
India		
Amritsar	500 children aged 1 month to 14 years admitted to hospital; poor social conditions	99% BF initially; 89% BF more than 6 months; 82% BF more than 1 year; 62.5% started weaning 6–12 months [43]
Bombay	61 infants of street sweepers; poor social conditions	all BF initially; 64% wholly and 26% mainly BF at 3 months; 72% still wholly or mainly BF at 12 months [22]
Delhi	3 areas around Delhi	almost all BF initially; at 1 year, 37% of urban, 4.5% of semi-urban and 2.1% or rural children completely weaned [42]
Nigeria	Yoruba community in SW Nigeria	BF is continued for 2–3 years and solid food is not usually given until teeth appear [26]
Senegal	all births (about 8,500) in a rural area	children alive at 3 years: 99.5%, 99.0%, 96.5%, 80.7% BF at 6, 12, 18 and 24 months [6]
Taiwan	4,631 married mothers using IUCD	94% breast-fed; average length of lactation 16–18 months [20]
Tasmania	547 mothers of children born in 1969	53% BF initially, 17% fully BF and 6% partly BF at 3 months [9]

[1] Adapted from THOMSON and BLACK [44].

deal with large and representative samples and few give sufficient detail. The declining trend in breast-feeding with special reference to Europe was also recently reviewed(46).

The stated reasons for the rapid decline in breast-feeding in many countries appear to be based mainly on assumptions or « speculation » rather than on objective findings. It would seem, therefore, that there is a great need to carry out well-designed studies to determine the factors influencing this declining trend. It is not the intention here to discuss these various factors but, since breast-feeding is a manifestation of human behaviour, it is evident that the changing patterns of breast-feeding should be viewed within the context of socio-cultural dynamics and changes in the society. The following factors are thought to influence breast-feeding behaviour : urbanization and industrialization;

mothers working outside the home ; attitudes of health workers and policies of health services ; changes in sexual behaviour as related to taboos on sex during breast-feeding ; availability of easy, safe and attractive breast milk substitutes ; the influence of marketing, advertisements and mass media, etc. Much remains to be learned about the interrelation of these factors and the relative importance of the impact of each on breast-feeding.

Although, in general, it is true to state that both duration and incidence of breast-feeding in most parts of the world are undergoing an overall decline, recently it appears that there is an increasing trend in breast-feeding among the « better educated » segments of some communities in some developed countries. Although it is generally assumed that a negative correlation exists between advanced socio-economic development and the incidence of breast-feeding, data from highly socio-economically advanced countries, such as Sweden, indicate that this assumption is not necessarily true (18).

3 - *Lactation, breast-feeding and reproduction* -

3.1. - *Lactation and conception* -

This subject can be looked upon from the following points of view : Does lactation delay conception ? How can one prevent conception while continuing with breast-feeding when this is so desired ? What is the effect of new conception upon the quality and quantity of breast milk ? According to the prevailing customs in most countries, when a new pregnancy occurs, the preceding child is abruptly weaned from the breast. Mothers in developing countries generally believe that breast-feeding protects them from a new pregnancy and in some communities, one of the reasons for prolonged breast-feeding is to avoid subsequent pregnancy. Reports from studies only confirm this view to a certain extent, that a lactating woman is less likely to become pregnant, especially when the baby is fully breast-fed, than is a non-lactating woman. However, the contraceptive value of lactation for an individual woman is far from satisfactory.

In a study by Bonte and van Balen (5) of 368 Rwanda women, 50 non-lactating and 318 lactating women 9 months after delivery, 74 p.100 of the non-lactating women became pregnant as compared with only 7.6 p.100 of the lactating women. In this study the family spacing effect, therefore, was maximal during the first 9 months and by 27 months after delivery the contraceptive effect of lactation was assumed to have largely disappeared.

In a study of 500 pregnancies in Mexico City (14), 46 cases of pregnancy (9.2 p.100) occurred during lactation, of which only 28 cases (5.5 p.100) occurred during the first 9 months. This finding almost concurs with that of Bonte and van Balen (5) mentioned above. However, in a study of 2,102 mothers in some urban communities in the Philippines, del Mundo and Adio (32) discovered that « breast-feeding beyond 6 months (7-12 months) gave a child spacing of 24-35 months in 51.2 p.100 of the cases. This interval of pregnancy or child spacing of 24-35 months was observed only in 30 p.100 when the infants were not breast-fed. The difference between the two groups is significant which cannot be explained by sampling variation alone ».

On the other hand, Kamal et al. (23) in a study of 290 lactating women attending an MCH centre in Egypt, found that more than half of the mothers became pregnant during lactation, even during lactational amenorrhea, and thus concluded that lactation is far from being a satisfactory method of prevention of pregnancy, and, therefore, early contraception is important since it affects the period when breast-feeding is most essential to the baby.

In a study on breast-feeding in Sri Lanka on 22,550 families, Fernando (13) found that 16 p.100 of babies who were either entirely or partially breast-fed were taken off the breast as a result of subsequent pregnancy. Obviously, variations in the findings of these studies need to be clarified with further studies in different parts of the world, but one could, in view of the present state of our knowledge, conclude that on an overall basis, lactating women are less at risk of getting pregnant than non-lactating women. However, one should emphasize that lactation on an individual basis cannot be considered a safe method of contraception, although on a community level, prolonged lactation will reduce fertility as a whole. Some of the differences observed above might also be related to socio-cultural and behavioural differences and the bearing of these on sexual relations during breast-feeding. It is well known that in some communities sexual relations with a lactating woman are taboo and, therefore, the lactating woman is less likely to get pregnant, not only for biological reasons, but mainly for socio-cultural reasons. One might mention here, however, that traditional rural societies are undergoing changing patterns of behaviour, especially with migration to urban areas, and these cultural taboos are not always observed. Therefore, it is logical to assume that today, in urban communities in Africa, for example, pregnancies are occurring much earlier post-partum than previously and that family planning in these areas thus becomes essential for the prevention of an untimely pregnancy and for the continuation of breast-feeding for the young child.

Very little research exists which is related to the impact of a new conception on the quantity and quality of breast milk. Belavady (2) has indicated that some changes do occur, but much remains to be learned in this area.

3.2. - *Lactation, menstruation and ovulation* -

Studies have shown that ovulation may be suppressed during lactation and that, in the post-partum period, ovulation tends to occur earlier among non-lactating mothers than among those who breast-feed their infants. Determination of the first post-partum ovulation has been studied by different means, such as endometrial biopsy, basal body temperature, vaginal cytology, repeated observation of cervical mucosa. In the study of post-partum ovulation on 200 women of low middle class in Chile (36) Perez, by the use of the above-mentioned methods, found that the earliest ovulation occurred on the 36th day and the latest 422 days after delivery : « 24 (14.1 p.100) of the 170 women who underwent a natural evolution of nursing ovulated while on full nursing ; 49 (28.8 p.100) while on partial nursing, and 87 (57.1 p.100) when nursing had been discontinued ».

Among the 30 women in whom nursing was artificially suspended, there was an average of 49 days (standard deviation ± 12) to the first post-partum ovulation. The earliest ovulation in this group occurred on day 36 ; the latest on day 77.

In a study of Alaskan Eskimo women, Berman (4) found that the « use of life-table analysis for measurement of the conception rate among Alaskan Eskimoes substantiates the findings previously reported that two factors serve to differentiate nursing from non-nursing women in relation to conception post-partum. The first is the ovulatory period of post-partum amenorrhea which is found to be longer for nursing women than for non-nursing women. The second is that the number of anovulatory cycles after menstruation recurs is greater for nursing women than for non-nursing women. Both of these factors being additive, result in a longer interval between pregnancies for nursing women than for non-nursing women where contraceptive methods are not used. The consistency of the findings for Alaskan Eskimoes with those reported for women in India show that the physiologic effect of nursing on the rate of conception is independent of climate ».

Thomson et al. (45) in a review of « Lactation and Reproduction », referring to factors affecting menstruation, state that it is important to note that « lactation is a physical function whereas breast-feeding is a form of maternal behaviour which can vary from frequent feeding on demand of a vigorous and hungry baby which receives breast milk as its only food to occasional use of the breast to feed the baby which receives its nourishment from other sources or which is too weak to suckle frequently. Relationship between lactation and menstruation may be influenced by breast-feeding behaviour ». Menstruation is said to return more quickly with partial than with full breast-feeding. McKeown and Gibson (29) found that 4 months after delivery, the proportion of women menstruating was 40 p.100 among those fully breast-feeding, 57 p.100 among those partially breast-feeding and 95 p.100 among those fully bottle-feeding their babies. It should be noted that ovulation might precede menstruation and that first cycles of menstruation might be unovulatory. In different studies, the percentage reported of ovulation preceding first menstruation varies from 12 to 15 p.100. Cronin (10) found that about one-third of 171 women studied had ovulated before the first menstruation.

Kamal et al. (23) found that more than one-third of lactating mothers have their first menses within 3 months of delivery ; by 9 months two-thirds were menstruating ; and by the end of 15 months, with weaning, 87 p.100 were menstruating.

3.3. - *The influence of contraceptive measures on lactation* -

After a review of the literature discussing the effects of hormonal levels on breast-feeding, Thomson et al. (45) (in the paper referred to above) summed up the situation as follows : « There seems to be general agreement that combined hormonal contraceptives given cyclically or sequentially do have an adverse effect on lactation but one that, with modern low oestrogen dosage contraceptive, is not usually obvious without the careful collection of statistics. It is not entirely clear whether this is a direct pharmacological effect on the ability to secrete milk or some form of unintended selection whereby mothers who use the pill are also those who fail to encourage adequate suckling ».

Chopra (7) in a recent review, « Effect of Steroid Contraceptives on Lactation », summarized that current evidence suggests that certain types of contraceptive pills do interfere with lactation especially those which contain high doses of oestrogen and are administered early after delivery, before lactation is fully established. Further study in this area is needed in spite of the difficulties that must be overcome for this kind of research. The effect of other contraceptive measures as, for example, the intra-uterine contraceptive device (IUCD), has not been mentioned here in these reviews.

4 - *Breast-feeding and infection* -

There seems to be a general agreement that breast-feeding, when compared with other sources of nutrition, is accompanied by a lower incidence of infectious diseases and that such protection is not limited to defence against intestinal tract infections. This phenomenon has been the subject of many recently reviewed studies (28).

It is well documented that the human colostrum is very rich in immunoglobulins (Ig). Although their levels decrease following parturition, immunoglobulins remain significant in milk for prolonged periods (27). In a recent study Iyengar and Selvaraj (19) observed that in infants who did not receive colostrum, a marked fall in IgG levels occurred on the fifth day after birth as compared to levels at birth. The concentrations of IgA and IgM showed marginal changes. In contrast, colostrum-fed infants showed significant increases in the concentration of IgG. On the fifth day, levels of all three immunoglobulins were significantly higher in the serum of colostrum-fed infants than in those who did not receive colostrum. The authors suggest that immunoglobulins present in colostrum are, to a certain extent, absorbed from intestinal tract of newborn infants, and this may have some physiological significance in the resistance to infection during the early neonatal period.

In an extensive investigation in Sweden, Mellander et al. (30) found that the incidence of infections, including otitis media, upper respiratory infections and acute diarrhoea was lower in breast-fed than in bottle-fed infants aged 3 months to 1 year.

In the Inter-American mortality study of childhood, discussed previously, the patterns of mortality from diarrhoeal disease in the first few months of life were found to differ markedly among deceased children in different projects. In the 13 projects combined, 31.7 p.100 of the infants breast-fed and never weaned died from this cause in contrast to 51.4 p.100 of infants breast-fed 1 month or longer, 54.2 p.100 of those breast-fed less than a month and 51.7 p.100 of those never breast-fed. Therefore, breast-feeding without weaning is seen to be beneficial being accompanied by a smaller proportion of deaths from diarrhoeal diseases. This is important indirect evidence of the protective value of breast-feeding. Here one could also mention that no less important is the overall protection provided by a satisfactory nutritional state resulting from adequate intake of necessary nutrients contained in the breast milk for the early months of life.

The advantages of breast-feeding in controlling infection in infants have not been sustained in all the reports (11,40). One could presume that when environmental conditions and hygiene are satisfactory, the advantages of breast-feeding in relation to infection become marginal ; however, in the majority of the studies undertaken in unfavourable environmental conditions - the milieu of the majority of infants and young children in the world - fully breast-fed infants have a lower incidence of diarrhoeal and other infections than do those who are bottle-fed. Where environmental conditions are most unfavourable, survival of the infant is greatly dependent upon breast-feeding. In a longitudinal study of 11 villages in rural Punjab, India, where neonatal mortality was excessive - 74 per thousand live births - Wyon and Gordon (53) reported that « virtually all infants died who did not receive breast milk in the first month of life ».

5 - *Breast-feeding, growth and nutritional state of children* -

There are a great number of cross-sectional studies and special sample reports showing that the breast-fed infant, even in adverse environmental conditions might grow well in the first few months of life. Some of the studies also appear to give the impression that sometimes the breast-fed infant grows even better than the artificially-fed infant in industrially developed countries, especially in the first months of life.

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Harfouche (17) in a review of literature, confirms the above statement but concludes that after 6 months of age the growth curves fall off.

In a recent study from the Philippines, Guzman (16) mentions that the mean middle-class growth curve, particularly the height curve, follows that of a Boston group up to 2 years of age. This would indicate that the « Filipino child, given the proper environment, can reach the maximum potential for growth and that efficient beast-feeding is one of the best preventive measures against protein-calorie deficiency ».

An extensive review by Bengoa (3) of nutritional surveys conducted in 24 countries during the years 1966-1969 showed ranges of 0.5-7.6 p.100 for severe protein-calorie malnutrition (PCM) and 4.4-43.1 p.100 for moderate PCM. Although most of these surveys cannot be considered representative of the countries in which they were carried out, the results give a rough idea of the extent of PCM. « If one assumes that, on average, 3 p.100 of children up to 5 years of age in developing countries suffer from severe protein-calorie malnutrition and 20 p.100 from moderate malnutrition, the numbers involved would be approximately 11 and 76 million, respectively » (47). In considering the interrelationships of various dietary factors in the aetiology of PCM, there has been a tendency to over-emphasize the importance of either protein or calorie deficiency alone, when in fact the two almost always occur together (12).

When breast-feeding periods become shorter in developing areas, and infants are bottle-fed with over-diluted milk preparations in unhygienic conditions, early malnutrition and diarrhoea occur. This is well illustrated in a recent study by Plank and Milanesi (37) : « During 1969-70, 1,712 rural Chilean mothers were interviewed to see if their feeding practices contributed to infant mortality. There were three times as many deaths among babies given bottles before the age of 3 months as among those who were wholly breast-fed. Nearly half the children had started bottle-feeding by that age, and it was thus a major factor in infant mortality. Additional foods, apparently, provided these babies with some protection, whereas continued breast-feeding did not. As living standards improved, weaning was accelerated and a higher proportion of children were fed on the bottle alone. The anomalous consequence was that infant mortality rose with income. These observations support the opinion that early weaning is a concomitant of economic development ; they also suggest that the risk associated with bottle feeding may be reduced by adding other foods to the diet ».

Among deceased children in Latin American projects combined (39,p.268) nutritional deficiency as an underlying or associated cause of infant mortality was less frequent in infants who were breast-fed and never weaned than in infants who were bottle-fed or were breast-fed for only a limited period.

From the study of Plank and Milanesi (37) cited above, one can see that the declining trend in breast-feeding is at least partially responsible for a changing pattern of mortality and morbidity in childhood, leading to a rising incidence of early marasmus and diarrhoea, increased susceptibility to infection with immediate and possible long-term harmful effects on the growth and development of the child, all of which place a heavy burden on and an increased cost to the family, the health services and the community.

6 - *Maternal health and breast-feeding* -

The generally accepted nutritional requirements for lactating women by WHO/ FAO Expert Committee (12) do not seem to be the practice in most poorer socio-

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economic conditions, yet it is not quite known how this affects the quantity and quality of breast milk. This question requires further study, as does the relationship of breast-feeding to the health of the mother in general. The psychological aspects of breast-feeding have been reviewed elsewhere (33) and will not be dealt with here.

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THE CONTRACEPTIVE EFFECT OF BREAST-FEEDING

P. DELVOYE[*]

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1 - *Introduction* -

The dynamics of a population are determined by the interaction of a number of parameters : emigration, immigration, natality and mortality.

The birth rate depends among other things upon the interval between pregnancies, and this in turn depends on the period of infertility which follows childbirth and which in clinical terms is known as postpartum amenorrhoea (fig. 1).

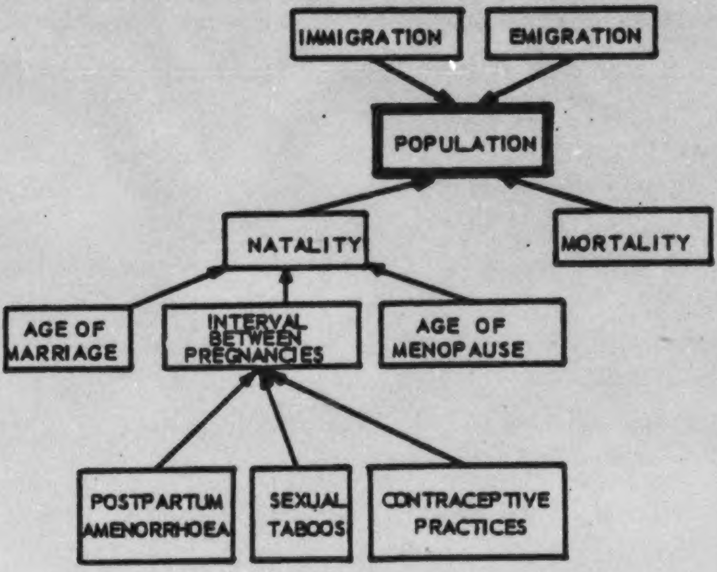
IMMIGRATION
EMIGRATION
POPULATION
NATALITY
MORTALITY
AGE OF MARRIAGE
INTERVAL BETWEEN PREGNANCIES
AGE OF MENOPAUSE
POSTPARTUM AMENORRHOEA
SEXUAL TABOOS
CONTRACEPTIVE PRACTICES

Figure 1 : Factors involved in population movements
(in particular : factors affecting the birth rate)

Postpartum amenorrhoea, however, varies from one area to another (1), and this provides a partial explanation of the differences in rates of population growth observed in different countries. For this reason it is important to know the physiopathological factors involved in postpartum amenorrhoea.

2 - *Background for the work* -

In order to study the factors responsible for postpartum amenorrhoea, we approached urban and rural population groups in Eastern Kivu, in Zaïre. This is a naturally fertile population whose fertility is unchecked, both medically (there is no medical contraception) and culturally (sexual taboos have disappeared). Breast-feeding is generally practised, for a long period and on request. In urban areas, however, food habits of a Western type are leading to reduction in breast-feeding on request.

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This area, which forms part of the region of the great lakes, is further characterized by high population density, and on the health plane by a high rate of protein-calorie malnutrition. The average interval between births is between 33 and 39 months (2).

3 - *Working hypothesis* -

3.1. - *Physiological note* -

Suckling causes discharges of prolactin in the weeks following childbirth, but in Caucasian populations this discharge grows rapidly less with time and is negligible three months after childbirth (3, 4). Hyperprolactinaemia is often associated with anovulation responsible for amenorrhoea, either in pathology (microadenomae of the pituitary gland), or in pharmacology (action of antidopaminergic substances such as sulpirid (5). During pregnancy the prolactin levels increase progressively and reach their maximum just before childbirth (6).

3.2. - *Hypothesis* -

Breast-feeding causes discharges of prolactin which are responsible for inhibiting the cyclical discharge of gonadotrophins, resulting in absence of ovulation leading to amenorrhoea and thus to temporary and reversible infertility.

4 - *Observations and results* -

4.1. - *Rôle of prolactin in postpartum amenorrhoea* -

In the population groups studied, the basal prolactin levels remain high during the first fifteen months following childbirth : two or three times higher than the levels observed in women who are neither pregnant nor breast-feeding (fig.2).

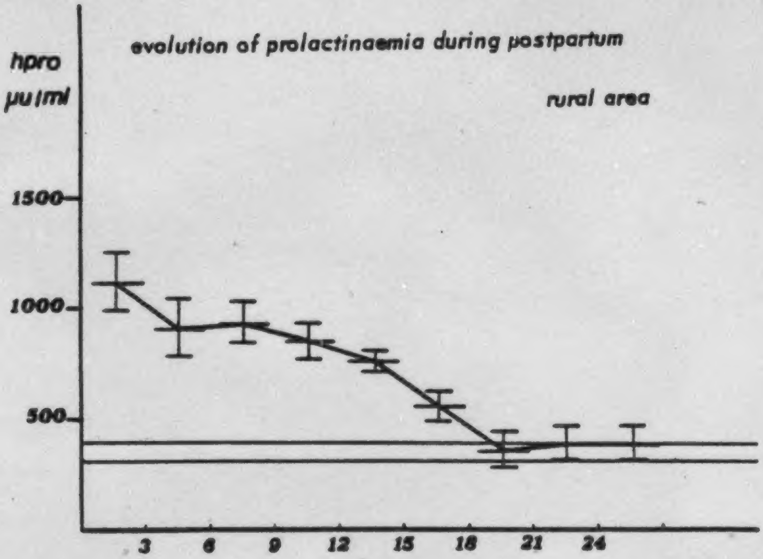

Figure 2

Evolution of prolactinaemia during the first twenty-four months postpartum in a population of lactating women in a rural area (Idjwi).
(mean and SEM)

The basal prolactin levels are significantly higher in lactating women than in women who are neither pregnant nor lactating, or in men ; and among the lactating women the levels are higher in amenorrhoeic women than in those who are menstruating (fig.3). In lactating women the prolactin levels after suckling observed in women who have resumed their menstrual cycle are significantly lower than the prolactin levels observed before suckling in amenorrhoeic women (fig.4). (8). This difference between menstruating and amenorrhoeic women is observed whatever the postpartum month may be (9).

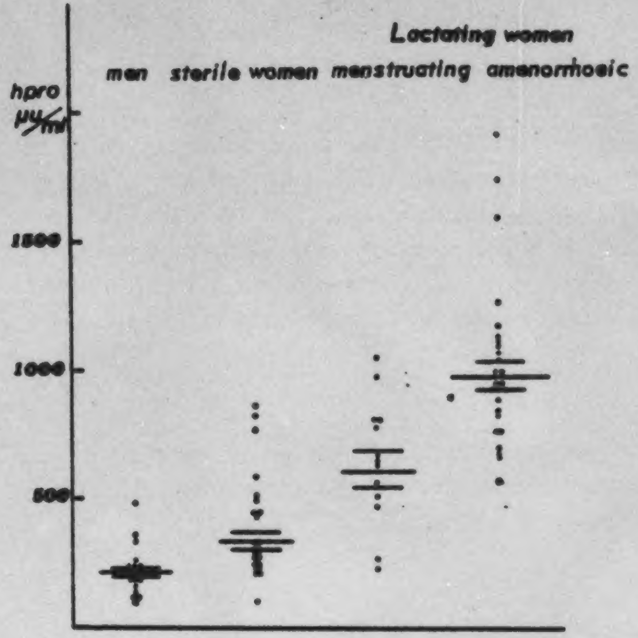

Figure 3

Comparison of basal serum prolactin levels (mean + SEM) in a population of men (N = 20), of non-pregnant, non-lactating women (N = 25), and of lactating women with a menstrual cycle (N = 13) and without = amenorrhoeic (N = 26). The differences between each group are statistically significant.

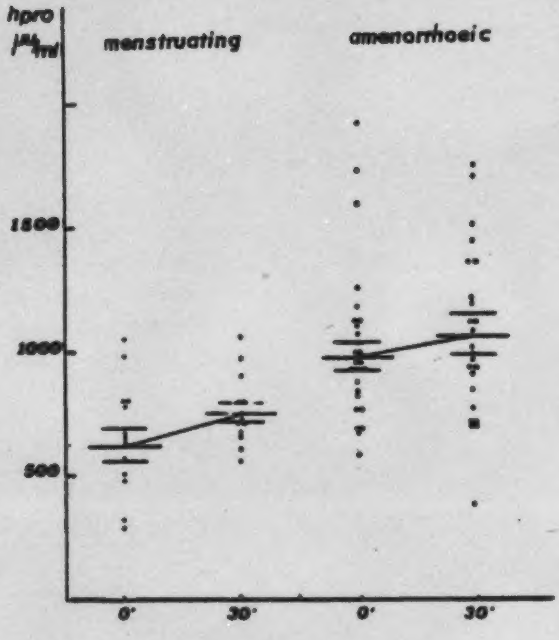

Figure 4

Serum prolactin levels (mean + SEM) just before and 30 min. after giving the breast, in two groups of lactating women (between the first and 24th month postpartum) :

1/ menstruating women (N=13),

and

2/ amenorrhoeic women (N=26).

There is an obvious parallel between the curve of resumption of menstruation (percentage of menstruating women) and that of the return of prolactin levels to normal (< 2 S.D.) depending on the postpartum month (9) (fig.5). All these observations suggest the rôle played by hyperprolactinaemia in the maintenance of postpartum amenorrhoea.

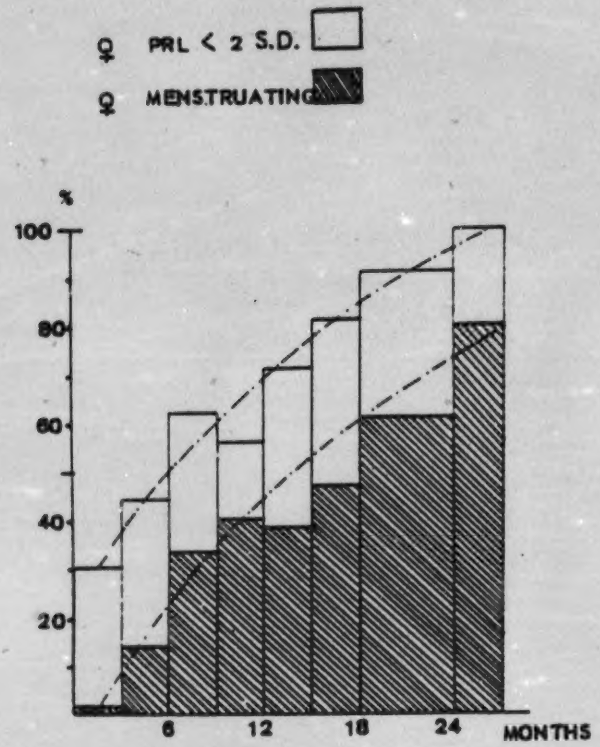

Figure 5

Percentage of menstruating women and women with normal prolactin levels (prolactin level < 2 S.D.) in a population of lactating women, according to the month postpartum.

4.2. - Factors contributing to maintenance of hyperprolactinaemia -

4.2.1. Duration of breast-feeding. In the absence of breast-feeding, or after lactation has ceased, the prolactin levels quickly return to normal. The longer the period of lactation, the greater likelihood there is that prolactin levels will be maintained at high levels for a long time, and that there will be a long period of amenorrhoea.

This explains the results of the epidemiological studies which show a correlation between duration of breast-feeding and duration of postpartum amenorrhoea (10, 11, 12), as well as the results of studies carried out in our rural and urban population groups : amenorrhoea is of shorter duration in urban areas where breast-feeding is given up sooner than in rural population groups (13).

4.2.2. Quality of the feed. The quality of the feed, linked with the quality of the mother/ child relationship, favours hyperprolactinaemia (14).

4.2.3. Rôle of the feed. The feed does not cause an important discharge of prolactin. If the effect of the feed is compared with the effect of thyroid-releasing hormone (TRH) on the secretion of prolactin, and if this effect is compared during the first year and during the second year, it will be noted that secretion of basic prolactin is at its peak during the first year, and that TRH increases the basic levels very slightly, whereas the response is not significant during suckling. During the second year, on the other hand, when the basic levels are still comparatively high but begin to decline, TRH causes a maximum discharge (increasing the basic levels 2.2 times), whereas the feed only induces a slight, though significant, increase (1.3 times the basic level) (fig.6).

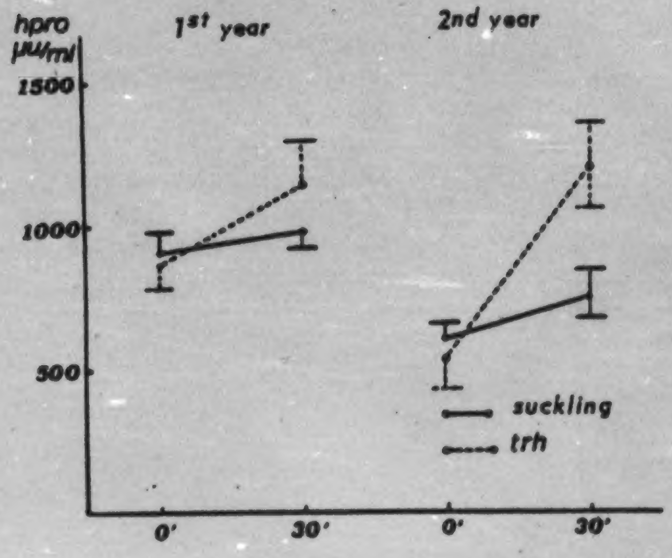

Figure 6
Effect of TRH (N = 33) and of suckling (N = 43) on the serum levels of prolactin (mean + SEM) during the first and during the second year postpartum.

Thus the effect of suckling is not to produce repeated peak secretion, but to maintain the basal prolactin levels high.

4.2.4. *Frequency of feeds.* The greater the number of feeds in the day, the higher these prolactin levels will be. The prolactin levels of women who give the breast more than six times a day remain high during the whole of the first year, whereas those of women who give the breast only between once and three times a day are within the same levels after the sixth month postpartum as those observed in women who are neither pregnant nor breast-feeding (15).

Taking the postpartum month into account, there is a positive regression of prolactin levels depending on the number of feeds a day (fig.7).

5 - *Conclusion* -

The duration, quality and frequency of maternal lactation, through the maintenance of high prolactin levels, plays an important rôle in postpartum amenorrhoea : by increasing the length of time between pregnancies it constitutes, for population groups if not for individuals, a contraceptive factor which should not be underestimated (fig.8).

From the point of view of population dynamics, if breast-feeding declines or is given up this may lead to a situation where the balance is broken if compensation is not provided by medical contraceptive methods or by sexual behaviour to the same end (postpartum abstinence).

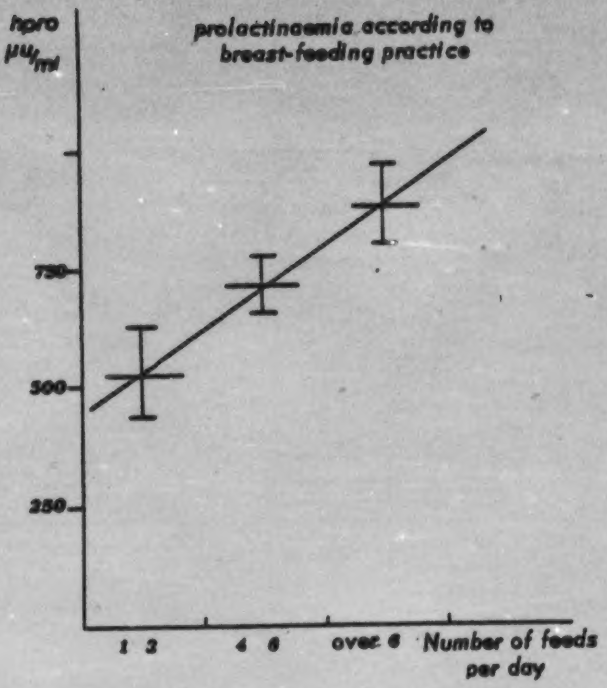

Figure 7

Serum levels of prolactin (mean + SEM) in three groups of lactating women according to the number of feeds in the day :
1 - 3 feeds/day (N = 19)
4 - 6 feeds/day (N = 52)
over 6 feeds/day (N = 26)

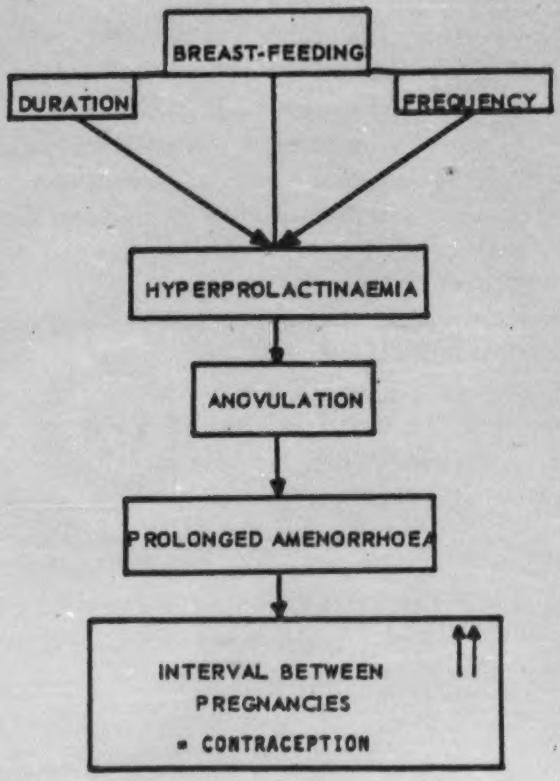
BREAST-FEEDING
DURATION
FREQUENCY
HYPERPROLACTINAEMIA
ANOVULATION
PROLONGED AMENORRHOE
INTERVAL BETWEEN PREGNANCIES
= CONTRACEPTION

Figure 8 : Physiological mechanism explaining the contraceptive effect of breast-feeding.

Let us compare urban and rural environments from a demographic viewpoint, and see how they are likely to develop (fig.9).

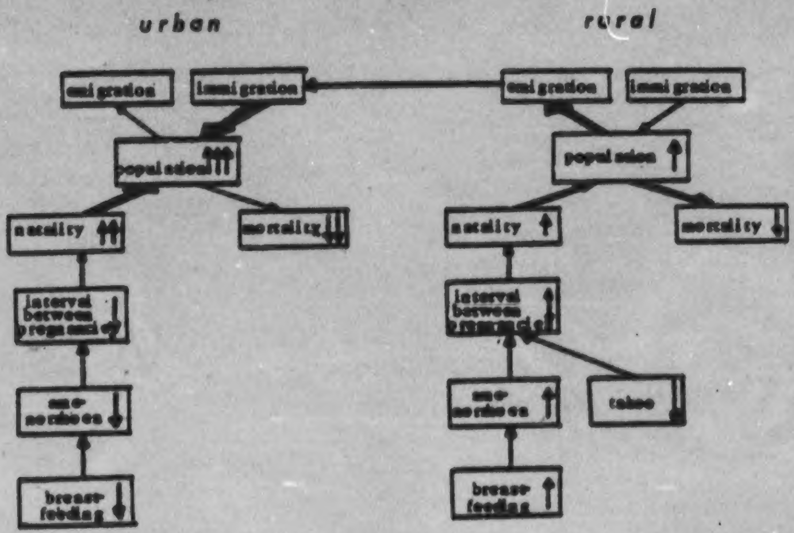
urban
rural
emigration
immigration
population
natality
mortality
interval between pregnancies
amenorrhoea
breast-feeding
emigration
immigration
population
natality
mortality
interval between pregnancies
amenorrhoea
taboo
breast-feeding

Figure 9 : Comparison between urban and rural environment with reference to factors influencing population dynamic.

Natural breast-feeding is maintained in a rural environment, and is responsible for prolonged postpartum amenorrhoea ; when sexual taboos have disappeared the interval between pregnancies is prolonged, and the birth rate, though high - for the notion of birth limitation is non-existant - is within reasonable limits. By reducing mortality, the health services, in addition to the birth rate, contribute to demographic growth which is only slightly compensated by the safety-valve provided by the exodus from rural areas (emigration factor) : the overflow goes from the countryside to the towns, and this movement is practically always one-way.

In an urban environment, on the other hand, breast-feeding, as well as the interval between pregnancies, tends to decrease, and this causes a greater increase in birth rates. The greater opportunities for health care which exist in urban areas bring mortality down more sharply than in rural areas, and these two factors together contribute to a considerable rise in demographic growth, to which is added the immigration factor due to the exodus from rural areas. The consequence of this phenomenon is that shanty towns spring up in town suburbs, bringing with them their social sequelae of delinquency, crime, and clandestine abortion.

It therefore seems probable that in the short term the most acute population problems will arise in urban areas. Public health activities in such areas should give priority to policies which promote maternal breast-feeding and encourage attendance at family planning centres.

In rural areas, emphasis should be given to educating the population on the subject of birth limitation.

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BREAST-FEEDING AND REPRODUCTION

RESEARCH AND ACTION

M. PÉCHEVIS *

In the field of family health, two activities stand out as particularly important : the promotion of breast-feeding, and family planning. These two activities, however, may very often appear to be contradictory and indeed incompatible ; the desire to prescribe the pill, for instance, may put an end to breast-feeding prematurely, or, on the contrary, the desire to breast-feed and to continue for a prolonged period may lead to putting off the adoption of an effective method of contraception.

Very many studies have been made in the past few years on the relationships between breast-feeding and human reproduction. These studies are still incomplete and sometimes difficult to interpret, but they have nevertheless already provided a certain amount of fairly precise data which can, and indeed must, give guidance in the activities of health personnel responsible for family health. All too often, a wide range of opinions still continue to be propagated and perpetuated with regard to the contraceptive effects of breast-feeding, or the effects of contraceptives on lactation.

We shall attempt to summarize the present status of knowledge in this field on the basis of publications on the subject in the past few years. Particular mention should be made of the excellent statement on the subject by Thomson et al., published in the WHO Bulletin in 1975 (24).

1 - *Contraceptive effects of breast-feeding* -

The belief that breast-feeding is a protection against another pregnancy is a very old one. It has been brought up-to-date and confirmed by many studies. However, such protection is variable and imperfect, and this has led to its being discredited in the opinion of the population and of health personnel, especially since modern methods of contraception have been developed. Let us consider the facts.

Return of fertility following pregnancy may be assessed in several ways :

- the occurrence of another pregnancy of course provides certain proof ;
- but as a rule, return of menstruation is taken as sufficient proof, taking into account that this first menstrual period is not synonymous with renewed ovulation, which may take place before or after it appears.

Studies to assess the eventual effect of breast-feeding have utilized these different indicators.

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1.1. - Breast-feeding and conception -

Among the studies which have compared pregnancy rates in breast-feeding and non-breast-feeding women, may be mentioned those cited by Van Ginneken (25), carried out in Indian women in the Punjab and Esquimo women in Alaska, who were not practising contraception : six months after childbirth, for instance, 2 per cent of the Indian women and 1 per cent of the Esquimo women who were breast-feeding were again pregnant, as compared with 40 and 44 per cent respectively of those who were not breast-feeding.

Another method of assessing the effect of lactation on fertility is to compare intervals between births in breast-feeding and non-breast-feeding women. According to Van Ginneken, breast-feeding may increase the interval between births by 15 to 33 per cent, depending on the study. These observations are confirmed by a recent study made in Tunisia (23). The authors note a distinct increase in the interval between two births with a longer duration of breast-feeding, and this in different age-groups : thus, the increase is between 6 and 8 months when one goes from premature weaning before one year to weaning after the twelfth month, and about one year when one goes from weaning before the twelfth month to late weaning around twenty-four months.

The corollary of these observations is that reduction in the duration of breast-feeding invariably leads to reduction in the interval between births, with all the harmful consequences which ensue for the mother's and the children's health. Decrease in the frequency of breast-feeding may also result in an increase in the birth-rate, as noted by Schaefer (22) in Esquimo women in Canada following the introduction of bottle-feeding.

Apart from the biological factors, however, behavioural factors must not be neglected : fertilization after childbirth implies not only a return of fertility, but also the existence of sexual relations, and it would seem that the state of lactation is accompanied by a change in sexual activity - either greater or lesser - in some women. Also, the existence of taboos in certain traditional societies leads to the renewal of sexual relations being postponed, for instance, until the end of the breast-feeding period or until the child is walking.

In the studies mentioned, data relate in most cases to population groups in which post-partum abstinence is limited or almost non-existent.

1.2. - Breast-feeding and menstruation -

It is a well-established fact that the period of post-partum amenorrhoea is longer in breast-feeding women than in those who are not breast-feeding. Furthermore, it has been noted that the longer the period of breast-feeding, the longer amenorrhoea lasts. This is shown, for instance, in the international post-partum programme studies cited by Van Ginneken (25) : whereas the average duration of amenorrhoea is 2.7 months in non-breast-feeding women, it is 4 months for a breast-feeding period of 5 to 7 months, and 7.6 months for a breast-feeding period of 14 to 16 months (survey covering 3,100 women in four countries : Colombia, Thailand, Turkey and Venezuela).

The duration of amenorrhoea is also influenced by the type of feeding, as shown in the study by McKeown and Gibson (17) : 4 months after childbirth, the proportion of mothers whose menstrual periods had returned was about 40 per cent in those who were feeding their child entirely at the breast, 57 per cent in those who were partially breast-feeding their child, and 95 per cent in those who were bottle-feeding their child.

As we shall see when we study the hypotheses on the method of action of breast-feeding, these differences between mixed feeding and complete breast-feeding are very probably connected with the frequency of feeds. Furthermore, interpretation of these data is made more difficult by the fact that prolonged breast-feeding is usually more frequent in population groups which are socially and economically underprivileged. And this brings us to the relationship often reported between malnutrition and amenorrhoea : severe malnutrition, either alone or in association with other factors, especially psychological, may lead to amenorrhoea, as was observed during the second world war in the Netherlands, or in women who had been deported, and in cases of anorexia nervosa. This has led to the conclusion that extended post-partum amenorrhoea, sometimes of very long duration, observed among breast-feeding women in developing countries, is due mainly to chronic malnutrition (26). It would seem, however, that the type of feeding, and especially the number of feeds, play a still more important rôle, as shown in the recent studies on prolactinaemia which we shall discuss later (9), as well as the observations made in the United States on breast-feeding women whose nutritional status is satisfactory, who practise so-called «natural» feeding of their child, and who have very prolonged periods of post-partum amenorrhoea : 14.6 months on average (study quoted by Jelliffe - 15).

Finally, in response to questions often asked by mothers and even by health personnel, it should be pointed out that the slight intestinal disorders observed in infants at the breast when menstruation returns are not a reason to interrupt breast-feeding. Nor should a child be weaned abruptly if the mother becomes pregnant again : there is generally nothing against continuing breast-feeding during the first few months of pregnancy.

1.3. - *Breast-feeding and ovulation* -

Even though the return of menstruation is usually an indication that ovulation has started again, and thus that fertility has returned, the two phenomena must be differentiated to the extent that another pregnancy may occur before the return of menstruation (according to Van Ginneken, in 3 to 13 per cent of women). As for menstruation, all the studies published on this subject (19, 24, 25) have shown that ovulation tends to be resumed earlier in non-breast-feeding mothers than in breast-feeding mothers.

At the level of a population, it is therefore certain that breast-feeding delays the return of ovulation and contributes to birth spacing. At the level of the individual, on the other hand, considerable variations exist and breast-feeding cannot be counted upon as an effective means of contraception : thus it is not infrequent for ovulation to occur in non-breast-feeding women during the first month post-partum (it may even occur from the twenty-first day onwards), while in breast-feeding women ovulation during the first six weeks is rare, though it has been observed from the thirty-fifth day onwards (7, 16).

1.4. - *Physiological basis of the relationship between breast-feeding and infertility* -

Recent studies (9) have given a better understanding of the method of action of breast-feeding in extending the post-partum period of infertility.

The essential element appears to be maintenance of prolactinaemia above basic rates as long as breast-feeding continues, this hyperprolactinaemia being responsible for inhibiting the discharge of pituitary gonadotropins ; the result is an absence of ovulation accompanied by amenorrhoea and temporary infertility.

According to the study by Delvoye et al., the factors which contribute to maintenance of hyperprolactinaemia are as follows :

- the duration of breast-feeding : the longer breast-feeding is continued, the better chance there is of prolactinaemia being maintained for a long time at high rates. On the other hand, in the absence of breast-feeding or after lactation stops, prolactin rates quickly return to normal ;
- the quality of the feed, in the sense of a good mother/ child relationship, promotes hyperprolactinaemia (2) ;
- the feeds themselves seem to act not by stimulating a high secretion of prolactin but by maintaining the basic rates at high levels ;
- finally, the frequency of feeds seems to be one of the most important elements : prolactinaemia is maintained at the highest rates when the greatest number of daily feeds are given. In Delvoye's study, the average prolactinaemia rates are significantly higher in mothers who give more than six feeds a day or who breast-feed on request than in mothers who breast-feed less than four times a day.

It would seem, therefore, that the method of feeding is an essential factor in the maintenance of high prolactinaemia during post-partum, and consequently in delaying the return of ovulation and fertility.

This theory bears out the earlier observations on the relationships between breast-feeding and conception, menstruation and ovulation. More particularly, it throws light on why complete breast-feeding provides better protection than mixed feeding.

2 - *Influence of contraceptive measures on lactation* -

2.1. - *Influence of hormonal contraceptives* -

On the basis of studies published on this subject, we shall review successively :

- their influence on the onset of lactation and the quantity of milk ;
- their influence on the composition and the quality of the milk ;
- and finally the possible influence on the child of hormonal contraceptives taken by a breast-feeding mother.

2.1.1. *Influence on the quantity of milk.* High doses of oestrogens (Stilbestrol for example) are traditionally used to stop the onset of lactation in women who do not wish to breast-feed their child. Their effectiveness has however been questioned, since the absence of suckling which goes with their prescription plays at least as important a rôle in stopping lactation.

It was however natural that attention should be given to the effect of hormonal contraceptives on lactation. A large number of studies have been published covering both the effect of combined oestrogen-progestogen pills and that of sequential pills or contraceptives containing only progestogens.

The results are sometimes difficult to interpret, and there has been much criticism of the methodology used : in particular, the samples studied are often too small, the contraceptive formulae are different and it is therefore difficult to compare results, and the surveys are usually retrospective.

Several reviews of the literature on this subject have been published in the past few years. Among the most complete may be mentioned those of Chopra (6) and Rosa (mentioned by Jelliffe - 15).

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In spite of the difficulties of interpretation already mentioned, and the sometimes contradictory results, a certain number of predominant elements may be identified :

- in combined or sequential pills, it is the oestrogen component which appears to be responsible for the inhibiting effect on lactation ;
- preparations containing high doses of oestrogens have a clearly depressive action on lactation when they are administered in the immediate post-partum period, and this often leads sooner or later to lactation ceasing. Rosa notes that this decrease in the amount of milk secreted varies, from study to study, between 15 and 80 per cent. Jelliffe (15) reports that in some countries (Egypt and Tunisia particularly), the growth disorders that ensue have been termed « contraceptive marasmus ». On the other hand, this inhibiting effect is less pronounced once lactation is established, that is, after about the fourth week post-partum;
- pills containing low doses of oestrogens have a much less markedly depressive action on lactation than those mentioned above, even when they are administered early ; their action appears to be very slight or non-existent on established lactation ;
- hormonal contraceptives based on progestogens alone, administered orally or by injection, have no inhibiting effect on the quantity of milk secreted, even when administered very early (3). With certain progestogens (particularly depot medroxyprogesterone acetate (DMPA) administered intramuscularly), studies seem to indicate that milk secretion may even be increased. However, much research is still be done before the « milk pill » - combining contraceptive and galactopoïetic properties - becomes a reality.

2.1.2. *Influence on the composition of the milk.* This is perhaps the field where the results of studies are the most contradictory. In Egypt, Abdelkader et al. (1) have found a decrease of as much as 50 per cent in the levels of proteins and fats in the milk when various types of hormonal contraceptives are administered (high or lower dose oestrogen-progestogen contraceptives and progestogen-only contraceptives). These observations have been confirmed by Sammour et al. (21) with a progestogen preparation.

In India, on the contrary, Barsivala and Virkar (4) on the one hand and Gupta et al. (11) on the other, have found no significant change in milk composition with different types of pills.

The data should however be interpreted very prudently, taking into account the difficulties encountered in taking milk samples and analysing them (especially because of the great variability in the composition of the milk).

2.1.3. *Effects of hormonal contraceptives on the breast-fed infant.* These possible effects are the subject of controversy, and are the chief argument of those who consider that taking of hormonal contraceptives is contraindicated for breast-feeding women. Harfouche (12) has recently reviewed the literature on this subject :

- studies concerned with the excretion of steroid contraceptives (oestrogens or progestogens) in human or animal milk show that these preparations or their metabolites are excreted in very small quantities. In the human female the quantity excreted varies from 0.0002 to 1.1 per cent of the dose administered, depending on the author and the preparation ;
- on the eventual effects of this excretion on the child, only rare studies of clinical cases reported retrospectively are available. Thus Curtis (8) has described a case of

gynecomastia in a male infant whose mother had taken noretynodrel since the third day post-partum. A great deal of publicity surrounded this publication, which has remained unique. The few prospective studies carried out (18) have provided no proof of any particular effect on the child. Other observations which are sometimes mentioned chiefly concern the taking of high doses of steroids during pregnancy. Cases of vaginal cancer found in young women whose mothers had taken Stilbestrol when they were pregnant (13) have drawn attention to the possible long-term consequences of administration of hormones.

Even though these observations are not very convincing in the case with which we are concerned here, they prompt us to be prudent and to continue research. Like all risks, however, these must not be considered separately but have to be balanced against all the other risks to which different children are exposed. Whilst in the present state of our knowledge the short and long term risks, to the breast-fed child as a result of the mother's taking hormonal contraceptives are hypothetical, those facing the child as well as the other members of the family if another pregnancy occurs too soon after the previous one are on the contrary all too well known, especially in socially and economically underprivileged population groups.

It is also important not to adopt a dogmatic attitude based on exceptional instances. Suffice it to mention, as an illustration of this, what happened in France a few years ago in connexion with the prevention of rickets : on the pretext of avoiding the exceptional risks of hypervitaminosis D, of which a few cases had been reported in the literature, many physicians stopped prescribing vitamin D as a preventive measure. This resulted in a considerable recrudescence of rickets, and a certain number of very serious cases. And yet, in this specific case, hypervitaminosis D was a reality !

2.2. - *Influence of other contraceptive measures* -

The only measures worth mentioning, and whose effects on lactation have been studied, are intra-uterine devices (IUD's). Gomez-Rogers et al. (10) in Chile, and Hingorani and Bai (14) in India, have noted a longer period of lactation in breast-feeding women with an IUD as compared with control groups. The mechanism generally evoked is the mechanical stimulation of the uterus by the IUD ; this causes a secretion of pituitary oxytocin which in turn promotes lactation through the reflex of milk ejection. Other authors (6) have not noted any special effect of IUD's on lactation.

3 - *Conclusion* -

It may be asked how these data fit in with current practice and with the development of family planning programmes.

3.1. - *With regard to the contraceptive effect of breast-feeding* -

- Although breast-feeding cannot be considered a safe method of contraception at the level of the individual, it has an undeniable effect in postponing the return of ovulation at the level of a whole population. Rosa (20) has calculated that, in rural areas of developing countries, the protection given by amenorrhoea resulting from prolonged breast-feeding is one-third greater than the protection given by contraceptive methods dispensed as part of family planning programmes (protection calculated in couple/ years). Such protection seems to be much less valid in urban areas with the lower incidence and shorter duration of breast-feeding. Even if these figures are of questionable value, they have the merit of drawing attention to the prime importance of breast-feeding in family health programmes.

- We have also seen that if breast-feeding is to be effective (cf. the studies on prolactinaemia), it must meet certain conditions, and particularly that the feeds should be sufficiently frequent, as is the case in breast-feeding on request. Essential factors to be considered are thus the methods - or the technique - of breast-feeding :
  - continuation of breast-feeding on request should be encouraged where it is still practised. It should be remembered that this method of breast-feeding is also particularly well adapted to the nutritional and affective needs of the infant ;
  - a sufficient number of feeds should be carefully maintained throughout the period of breast-feeding. This should lead to reconsidering the technique of mixed feeding and supplementary feeding for breast-fed infants. The introduction of foods other than mother's milk, which is necessary from the fifth or sixth month onwards, is usually accompanied by a decrease in the number of feeds at the breast, since one feed is usually replaced by a meal : a bottle of milk, gruel, or vegetable or other purée. Thus the plan used for artificial feeding is transposed to breast-feeding and results in a progressive decrease in, and often early cessation of, lactation (stimulation of the nipple by suckling is recognized as being the best means of stimulating secretion and ejection of milk). One means of maintaining a sufficient number of daily feeds (at least five or six) would be to give a breast feed, even of brief duration, before or after the new meal, and eventually break up the additional feeding into small meals, distributed throughout the day.

In the light of the most recent data on the contraceptive effects of lactation as well as the numerous other advantages of breast-feeding, the technique of infant feeding needs to be thought through afresh. We are however aware of the difficulties we may well run up against, both because of habits which are firmly established and often considered sacrosanct by the population as well as health personnel, and also because of the material problems raised by such changes - when the mother is working outside the home, for instance, or the heavy burden placed on her when there are many young children in the home. What is at stake for large numbers of women and children, however, is sufficiently important to make it worthwhile to seek for practical solutions, more especially for a great part of the population in developing countries and for the underprivileged population groups in the industrialized countries (in particular migrant groups).

3.2. - *With regard to the effect of contraceptives on lactation* -

It may be questioned whether it is feasible to suggest what action should be taken when the data are so fragmentary and sometimes contradictory. Of course it is not possible to suggest one single course of action that would be applicable in all cases ; the attitude to be adopted must be adjusted to the needs, wishes and knowledge of the individuals, as well as to the customs of the area and the policy of the country on family health and family planning. However, it is possible to highlight some main points in order to help health personnel meet these problems and, instead of continuing to be faced with the dilemma « breast-feeding or contraception », be able to assist in establishing and continuing breast-feeding while at the same time ensuring effective contraception.

In summary, in the present state of our knowledge, the following advice can be given :

- avoid as far as possible prescribing hormonal contraceptives to a woman who is breast-feeding or who wishes to do so ;

- give preference during the period of breast-feeding to an intra-uterine device, or eventually other mechanical means to the extent that it can be anticipated that they will be used correctly ;

- if hormonal contraceptives are the only possible method (for instance in case the IUD is refused or other contraceptive measures cannot be used correctly) :

  . wait until the fifth or sixth week so that lactation is well established ;

  . prescribe preferably progestogen-only contraceptives, or if not a combined pill with a low dose of oestrogen.

There is no doubt that once an effective male contraceptive (other than a mechanical one) is available, it will be an indication of choice in such cases.

* * *

Health personnel responsible for family planning activities must be careful to protect and promote breast-feeding. As we have seen, breast-feeding and contraception have a common objective : both are aimed at ensuring better health for mother and child, particularly by ensuring satisfactory spacing of births and a good nutritional status.

All this lays emphasis, if emphasis is needed, on the necessity of integrating all family planning programmes into a global policy aimed at promoting family health.

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CHAPTER VII

SEXUALLY TRANSMITTED DISEASES

PRESENT EPIDEMIOLOGICAL ASPECTS OF SEXUALLY TRANSMITTED DISEASES

(High-risk groups)

A. SIBOULET*

1 - *Introduction* -

1.1. - Since 1961, both at the Hôpital Saint-Louis and at the Institut Alfred Fournier, in Paris, a continuous survey of sexually transmitted diseases has been in progress.

Each patient is coded on a card which is sorted by mechanical means (WHO). Since the beginning of the survey more than 50,000 patients suffering from *gonococcal infections* have been examined. Since 1968, there has been a particularly high recrudescence of female cases.

Cases reported in France have risen from 12,969 in 1969 to 17,874 in 1974 and 19,522 in 1975. Most of these cases are reported by dispensaries. Practising physicians tend less and less to report their cases of gonorrhea : less than 50 per cent of cases are reported in private practice. The true number of cases of gonorrhea in 1976 may therefore be estimated at about 500,000. It must be remembered that the population of France is about 52 million. In the United States, the number of cases is estimated at about 3 million a year ; and in Brazil it is thought to be about 20,000 a day (Professor Corintho Santos).

1.2. - Improved research techniques have brought out the large variety of *non-gonococcal infections* :

- 15 per cent of women and 10 per cent of men carry Trichomonas vaginalis.
- During a study in Africa made personally in Senegal in 1973, with J. Ridet, we found Trichomonas vaginalis in 21.7 per cent of the women examined (by culture) either in maternal and child health centres or in the bush.
- In 1974, during systematic examination of pregnant women in MCH centres, A. Siboulet and P. Rivemale found it in 18.7 per cent of cases, and among pregnant women complaining of leucorrhoea found it in 26.72 per cent of cases.
- 7 per cent of men and 10 per cent of women are carriers of Tric Agents or Chlamydiae in our out-patient clinic at the Institut Fournier.
- 20 per cent of women and 10 per cent of men have Monilia (Candida albicans).
- 20 per cent of women and 20 per cent of men have Mycoplasma.
- 6 per cent of men and women carry genital herpes, type 2,
- and 20 per cent of the patients have a wide variety of pyogenous germs (staphylococci, Haemophilus vaginalis, and other cocci).

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1.3. - The number of cases of *syphilis* reported in France can hardly be said to be decreasing. There were 4,665 cases of recent syphilis in 1972, 4,159 cases in 1974, and 4,368 in 1975.

As for *chancroid*, we found 321 cases at the Hôpital Saint-Louis in 1975.

In general, the various treatments proposed are effective in individual cases, but we are faced with complete failure to interrupt transmission on the overall epidemiological level. A knowledge of the present epidemiological position is essential if effective action is to be taken in either prevention or therapy.

2 - *The present epidemiological position* -

2.1. - It may be useful first of all to stress a few essential concepts :

2.1.1. Demographic growth, which causes the number of sexually transmitted diseases to increase year by year ;

2.1.2. The tremendous mass movement of people throughout the world, whether it is connected with leisure or with work. It is well known that the tourist is a vulnerable being who easily succumbs to the novelty of a sexual adventure.

At our out-patient clinic at the Hôpital Saint-Louis we examined 3,200 foreign tourists :

- 444 had sub-acute or acute urethritis due to a combined aetiology of gonococci and Trichomonas vaginalis ;
- 220 had acute gonorrhea, and 150 carried Trichomonas vaginalis ;
- out of 212 French businessmen or commercial technicians examined between 1970 and 1975, 121 had contracted their gonococcal urethritis, 54 their urogenital trichomoniasis, and 5 their syphilis, outside France ;
- 64 per cent of our students admit to having contracted their gonorrhea during holidays in Sweden, Spain, Morocco, or Thailand.

In statistics recently published in Sweden, we noted that 60 per cent of the students had contracted their gonorrhea in France, Germany, Morocco, etc. The development of holiday groups and transport facilities, and the improvement in lodging conditions (camping or youth hostels) has made travel increasingly easy for young female students and girls working in offices or factories.

2.1.3. With regard to the age of the patients, it is observed that younger and younger patients are seen every year.

The age-group 16-26 years is that most affected by syphilis, gonorrhea, and urogenital trichomoniasis. Peak incidence is found between the ages of 20 and 22.

In the age-group 13-19 years :

- of the total number of cases of gonorrhea reported in 1961, 8 per cent of them were in this age-group, whereas in 1975 this percentage was 14.5 per cent ;
- of the total number of cases of trichomoniasis reported in 1965, 6 per cent were in this age-group as compared with 12 per cent in 1974 and with 15 per cent in 1975.

A freer way of living has resulted in sex life beginning earlier.

2.1.4. The widespread use of the pill has removed the fear of pregnancy.

- In a group of girls between 13 and 19 years of age, 8.3 per cent of cases of gonococcal infection, and 7 per cent of cases of urogenital trichomoniasis were noted in 1960, whereas in 1975 these percentages were 14 per cent and 15 per cent respectively.
- With regard to female students, it should be emphasized that 85 per cent of them take the pill, and that their male partners use preservatives less and less.

In a recent study concerned with gynaecological consultations in family planning centres, gonococcal infection was found by culture in 6 per cent of all cases (out of a total of 1,250 cases).

2.2. - There has been a complete change in the mode and places of contamination. The passing girl-friend is much more often responsible than the traditional prostitute.

- For gonorrhea (1975), 52.2 per cent of male cases were the result of intercourse with a passing girl-friend, and only 25.2 per cent with a prostitute.
- For male trichomoniasis (1975), the occasional or habitual girl-friend was responsible in 74 per cent of cases.

2.3. - Individuals find themselves increasingly exposed to the temptations of sex in the name of liberty. The family, or religious precepts, have less and less influence.

2.4. - All this results in an increasing number of sources of contamination, caused partly by ignorance. In a group of 450 patients between the ages of 20 and 35, we noted that 45 per cent of them had waited more than 20 days before consulting a physician, and that 15 per cent refused to inform their partner.

3 - *High-risk groups* -

Five groups were chosen for special study :

3.1. - *Students*, and more especially female students.

- For gonorrhea, 4.1 per cent of cases were found positive in 1961, against 7.4 per cent in 1975.
- For urogenital trichomoniasis, 3.1 per cent of cases were found positive in 1961, 22 per cent in 1974, and 23 per cent in 1975.

Medical students constitute a special group, as shown by the following chain of transmission : the chain was started by a young English girl aged 22 who came to spend her holidays in France : 35 students were examined and treated, and there were 28 cases of gonorrhea, 8 of Trichomonas vaginalis, and 4 were carriers of Monilia.

3.2. - *Lorry-drivers* -

With regard to gonorrhea, we observed 4.1 per cent in 1961, and 10 per cent in 1975.

3.3. - *Workers in bars, restaurants and hotels* -

With regard to gonorrhea, 5.1 per cent in 1961, and 7.1 per cent in 1975.

With regard to urogenital trichomoniasis, 7.1 per cent in 1965, and 15.5 per cent in 1975.

3.4. - *Adolescents* (under 19 years of age) -

With regard to gonorrhea, we found 10.1 per cent in 1961, and 20.4 per cent in 1975.

3.5. - *Tourists* -

It should be noted that in 1975, 60 per cent of our students contracted their sexually transmitted disease outside France. A special WHO survey is underway concerning tourists.

4 - *Reminder of some medical facts - Difficulty of assessing sexual risk* -

All the statistics on sexually transmitted diseases are certainly very much lower than the real situation.

4.1. - Because of the increasing incidence of asymptomatic forms.

- In 450 men who had not the slightest sign of urethritis or urethro-prostatic irritation, but whose female partners were carriers of gonococci, we found positive cultures in 6 per cent of cases based on examination of the urethro-prostatic secretion after massage.
- In 350 men whose female partners had Trichomonas vaginalis, we found 20 per cent of positive cultures from urethro-prostatic secretion.
- In 450 women who had no sign of genital irritation, cystitis, or vulvovaginitis, but whose male partners had gonococcal urethritis, we found 65 per cent of positive cases by culture.
- In 112 women whose male partners had urethritis from Trichomonas vaginalis, we found positive cultures in 35 per cent of cases. In 21 per cent of cases the parasites were found by taking urethral samples.

The number of cases of healthy carriers is increasing every year, in both men and women.

- In France, it is considered nowadays that 6 per cent of the male partners of infected women have asymptomatic gonorrhea.
- With regard to mycoplasma, together with Catalan and Deubel we found (1975) mycoplasma T in 12 per cent of healthy men whose female partners showed clear clinical symptoms (vaginitis and salpingitis).

Together with Catalan and Deubel (1975), we found Tric Agents (Chlamydiae) in 10 women whose male partners had Reiter's disease, and in 6 women whose husbands had subacute urethritis with viral inclusion. In these 16 women the clinical examination was completely negative.

4.2. - Difficulties due to the fact that bacteriological diagnosis is difficult, since there are many possible causes.

4.3. - As a result, it is particularly difficult to treat the different partners at the same time.

4.4. - There is also the problem of defining the incubation period in many sexually transmitted diseases, particularly in the case of women.

- With regard to gonorrhea in women, it is impossible to determine this period in 92 per cent of cases. Sometimes the incubation period remains unknown when several partners are involved. In men, it is impossible to determine the incubation period in 27 per cent of cases.

- With regard to urogenital trichomoniasis, the incubation period is increasingly variable in men. In women, it is almost always impossible to determine.

The following table shows incubation periods in men recorded in 1974-1975.

Duration of incubation period	Number of patients	Percentage
2 - 10 days	125	25 %
10 - 20 days	175	35 %
20 - 30 days	115	23 %
30 - 60 days	60	12 %
over 60 days		

4.5. - These medico-epidemiological facts imply :

4.5.1. The need for continuous information to the public, and in particular young people ; as Dr Swomini recently said : « We must not stay only in the hospital, the dispensary, or in private medicine, but turn our efforts towards society ».

It was in this spirit that in 1975 the Institut Alfred Fournier disseminated information on sexually transmitted diseases at the Paris Fair.

4.5.2. A *choice of treatments* concentrating on epidemiology, which are :

- very speedily effective in order to be able to break the chain of contamination as quickly as possible ;
- well tolerated ;
- easily administered in a synchronized manner to the partner or partners (male or female).

All these considerations lead us to prescribe single-dose therapy (instant treatment) in all cases of gonorrhea or urogenital trichomoniasis without complications.

In cases of gonorrhea, we recommend at the present time one of the following :

a) - 10 tablets of Thiamphenicol taken all at once, 5 tablets with a glass of water, and 5 tablets with a second glass of water.

The following table gives the results obtained in 20,000 cases (1961-1975) :

Number of patients		Number of failures	Percentage
Men	16,615	404	2.4
Women	3,385	93	2.7

b) - Spectinomycine (Trobicine), 2 or 4 gr in a single intramuscular injection ;

c) - Long-acting Penicillin, in the form of Biclinocilline, 4 million U by intramuscular injection, plus 1 gr of Benemide per os.

In cases of urogenital trichomoniasis :

- either 10 tablets (250 mg each) of Metronidazole (Flagyl),
- or 8 tablets (250 mg each) of Nimorazole (Naxogyn),
- or 4 tablets (50 mg each) of Tinidazole (Fasigyn).

After the first course of treatment, a failure rate of 7-10 per cent was noted. After two courses of treatment repeated once a month for two consecutive months, only 4 per cent of failures were found.

Conclusion

1. The social importance of sexually transmitted diseases is generally recognized, but diagnosis is often difficult and treatment inadequate.

2. If the chains of contamination are to be broken as quickly as possible, an epidemiological treatment must be prescribed, especially for high-risk groups.

3. At the present time, these diseases are spreading still more rapidly in all parts of the world, as a result of ease of communications.

4. In the control of these diseases, continuous information should be disseminated, adapted to present-day needs, for it must be remembered that nowadays sexually transmitted diseases know no frontiers, and for them free exchange is absolute.

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CHAPTER VIII

SEXOLOGY

PHYSIOLOGICAL REACTIONS IN THE MAN*

G. TORDJMAN**

Sexology cannot claim to have the same rigour as the mathematical and physical sciences. Like all human sciences, it labours under the handicap of being largely uncertain and unforeseeable. Although sexology has a sound scientific basis it is impossible to reduce the art of loving to a prosaic collection of recordings, statistics, measurements and observations. Does the physiology of the gastric juices teach us anything about gastronomy ? For a long time the scientist ignored or repudiated the systematic study of sexual physiology, in order to avoid touching on what seemed to be his last refuge, the secret garden of his personal and conjugal privacy.

Less than thirty years ago we knew little or nothing of this branch of physiology. Admittedly work had been done previously :

- Havelock Ellis, from 1890 on, drew attention to the elective rôle of the clitoris in the sexual response of the woman. He discovered that the woman, unlike the man, can have multiple orgasms; in spite of these differences he recognized that in general the mechanism of sexual reaction are the same in both sexes.

- Freud, in the early years of this century, introduced a fundamental concept : sexual pleasure exists from birth onwards, and is the essential axis around which is built and organized the individual's psycho-affective development. This concept, which establishes a relationship between mental health and sexual behaviour, has altered the perspective of psychiatry and the human sciences. It has given us a better understanding of affective reactions, the emotions, personality structures, and family and socio-economic factors on which sexual behaviour is closely dependent. But these empirical and fragmentary pieces of knowledge provided only a partial reply to knowledge of sexual physiology.

- Kinsey : At the end of the first world war, changes in the cultural environment enabled Kinsey to undertake the first scientific study on sexuality in the American man and woman. Woman had experienced independence ; having been obliged to take over the responsibilities of the male - husband or brothers who were fighting in far-off lands - she found that she had become a first-class citizen. In that tumultuous post-war period two facts became clear :

. many women do not feel sexual desire or, in spite of sensual awareness, do not achieve an orgasm ;

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* From *Cahiers de Sexologie clinique*, 1975, *1*, no 3

** Secretary-General of the French Society for Clinical Sexology.

. the marital atmosphere, and quality of the relationship which develops between the partners, have a direct effect on sexual satisfaction. Sexuality is in fact considered by some to be the best barometer of the marital climate.

In this context, Kinsey announced to a startled world that :

- 37 per cent of white Americans have had at least one homosexual experience ;
- 50 per cent of American girls have lost their virginity before marriage. (Today we should have to increase this percentage quite considerably) ;
- 50 per cent of American males, although happily married, continue to masturbate.

From then on it became common to discuss sexual problems everywhere ; it was impossible to go to a party without hearing about one's neighbour's orgasm.

- Masters and Johnson : In the sixties, mass media took over. By broadcasting psychoanalytical concepts and terms, and imposing « standards » of sexual performance which sometimes helped to create an artificial atmosphere of dissatisfaction, they hastened the disappearance of taboos and increased curiosity in sex.

At the same time, young people everywhere revolted against parental and political authority, and put in the forefront of what they were fighting for the liberation of their sex life and that of oppressed sexual minorities.

This explosive and permissive environment brought the sexual revolution abruptly into contact with the medical world. Masters and Johnson, for the first time in history, were able to study the sexual physiology of 520 couples in their laboratory in St.Louis. Their fundamental research, of which the preliminary results were published in 1966, was the foundation of modern sexology.

1 - *Schematic description of the sexual response* -

Rather than describe the four classical stages of sexual relationship as set out for all to read in the works of Masters and Johnson - the excitement phase, the plateau phase, orgasm, and resolution - we prefer to divide the sexual response of the man and the woman into two schematic phases which we believe provide a better understanding of sexual inhibitions. This sexual response can thus be divided schematically into two successive phases :

- the phase of excitation or desire, of which the plateau phase is only an exacerbation ;
- the phase of orgasm, which takes a varying amount of time to resolve itself.

The excitement phase corresponds on the psychic plane to erotic emotions and desire. It brings into play vasocongestive processes which are essentially under the control of the parasympathetic nervous system.

The orgasmic phase corresponds to the subjective sensations of the culmination of pleasure. It brings into play the contraction of specific visceral muscles, controlled essentially by the sympathetic nervous system.

We shall review in turn the sexual reactions of the man and the woman*, and shall then attempt to bring out their similarities and their differences.

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* See « Sexual physiology in the woman », p. 200.

2 - *Sexual reactions in the man* -

2.1. - *The excitement phase,* which on the psychic plane indicates desire, is expressed in the man by three essential physiological changes :

- erection of the penis ;
- change in the colour of the corona glandis to deep red ;
- elevation of the testes (usually the right testis) which is a sign that orgasm is imminent. At this point the testes have increased in size by at least 50 per cent.

Erection is a haemodynamic process, not yet well understood, in which three mechanisms are involved :

a) In a state of flaccidity, the vascular areolae which form a fine cavernous network within the erectile tissues of the penis are virtually collapsed. As soon as sexual tension takes place, small arteries controlled by the pelvic parasympathetic increase their calibre and their flow. The most important is the deep pelvic artery, a branch of the internal pudental artery. When the penis is flaccid, its lumen is almost entirely obscured by the « coussinets de Conti », made up of a cluster of muscular columns. It is most probably when they come into action that arterial blood flow is enabled to flood and distend the vascular areolae (see diagram).

b) The veins on the surface are compressed by this distension against the inextensible tunica albuginea testis. Some American authors claim that a reflex valvular system also seals the veins as an additional means of preventing the blood flow from escaping. In fact if the veins were completely blocked the penis would be in danger of asphyxia. Recent studies of pathological anatomy have indeed not confirmed the existence of these venous « sphincters ». It is more likely that the haemodynamic process sets in motion an arteriovenous « shunt » in the corpora cavernosa, and that the « Coussinet de Conti » modulate its calibre according to the intensity of erection.

Intumescence of the penis is thus caused by an inflow of arterial blood which exceeds the outflow capacity of venous blood. In case of prolonged erection the inflow and outflow of blood become equal ; the penis ceases to enlarge, but remains rigid.

When the outflow of venous blood exceeds the arterial flow (in case of anxiety, for instance, which activates the sympathetic nervous system), the glans, an elastic and specifically receptive area, may show an erection which is dissociated from that of the body of the penis. Its incomplete rigidity then worries many patients, unless this independent erection takes place on a penis which is half flaccid, or half hard. according to whether one's approach is pessimistic or optimistic.

c) The base of the penis takes part in erection. Caressing or squeezing the ischio- and bulbospongious muscles which protrude in front of the anus can revive a feeble erection ; their tonic contraction sends blood into the arteries and helps to compress the veins which take the outflow.

This haemodynamic process explains impotence of vascular origin. Thrombosis of the trunk of the internal pudendal artery, its proximal or distal branches, or of the internal iliac artery from which it originates, hampers the flow of blood to the erectile bodies and may thus prevent erection. A new chapter in sexual pathology has been opened :

a study of distal arteritis of the internal pudendal. Leriche's syndrome, causing the classical «intermittent claudication» of the penis, has on the other hand been known for a long time.

When this congestive phase reaches its peak (the classical plateau phase of Masters), the following are observed :

- an increase in diameter of the corona glandis ;
- an (irregular) accentuation of its deep red colour ;
- enlargement of the urethral meatus, whose diameter increases threefold ; sometimes a few drops of «the dew of desire» secreted by the bulbo-urethral glands (Cowper's glands) emerge from it, and may contain a few spermatozoa (in 20-25 per cent of cases) ;
- finally, a thickening of the scrotum, whose folds disappear, while the right testis, more easily raised because of its anatomy (the right spermatic vein flows into the inferior vena cava, the left spermatic vein into the renal vein), is flattened against the perineum, thus indicating the imminence of ejaculation.

The excitement phase may last between a few seconds and an hour. This vasocongestive phase implies coordination and synchronization of several processes : stimulation of the corpusculae bulboideae (Krause's corpuscles) in the erogenous zones of the penis, the presence of cerebral influxes which bring into action phantasy or erotic memories, stimulation of the sexual process by the testosterone plasma rate («the messenger of desire»), and finally the influx from the seminal vesicles filled with sperm. Inadequate stimulation as a result of painful compression of the penis or an inhibiting thought (fear, or anticipation of failure) will hamper this vasocongestive phase of erection.

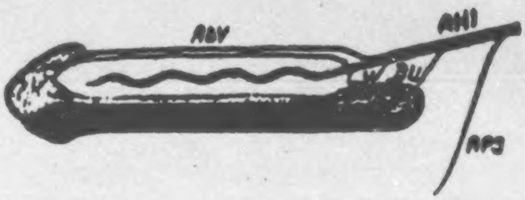


Figure 2*

The dorsal artery of the penis plays only a nutritional rôle. The deep artery which penetrates far into the corpora cavernosa is the real medium of erection.

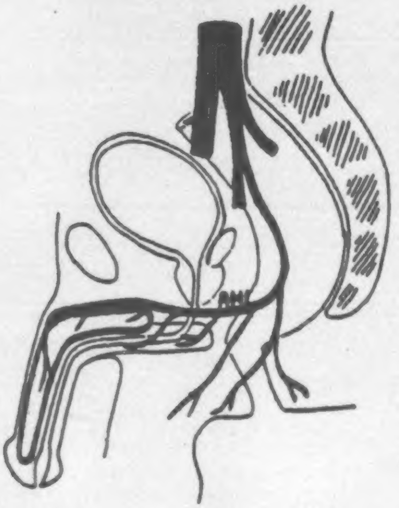


Figure 1*

The internal pudendal artery is the source of blood for all the erectile bodies of the penis. For a satisfactory erection the two internal pudendal arteries must be in perfect condition

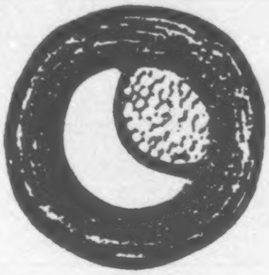


Figure 3*

The lumen of the branches of the deep artery is partly obstructed by «Coussinets de Conti».

* Reproduced by kind permission of Dr Subrini, Montpellier.

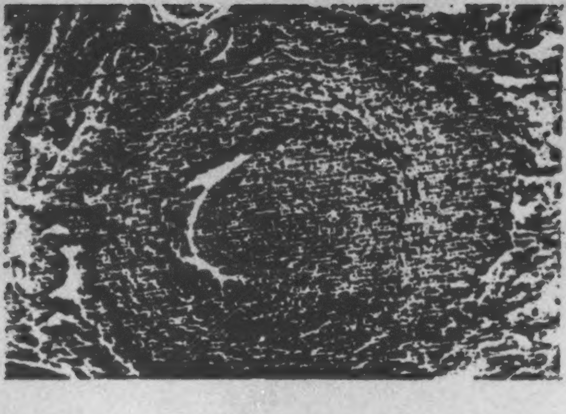


FIGURE 4

In repose, the lumen of the branches of the deep artery is almost completely obturated

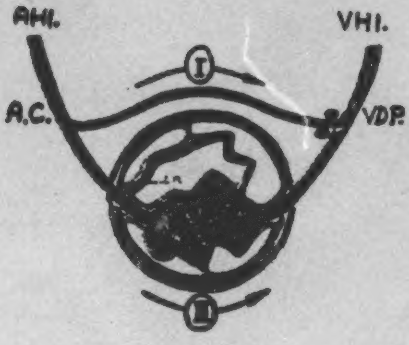
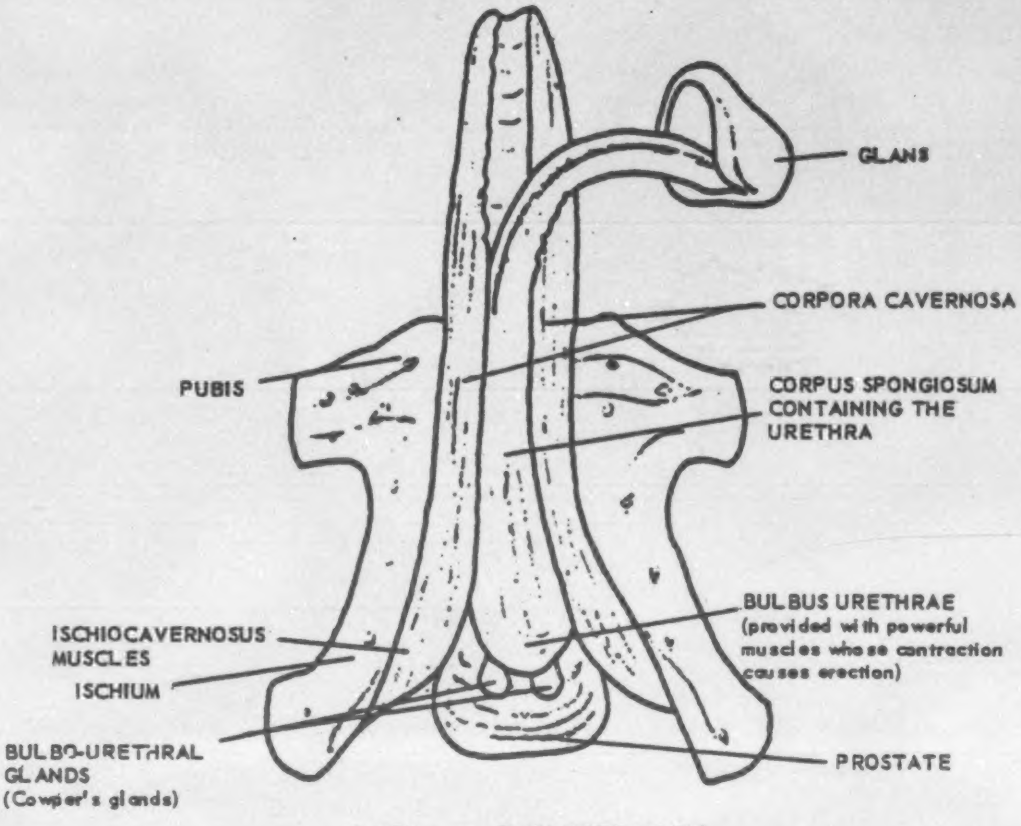
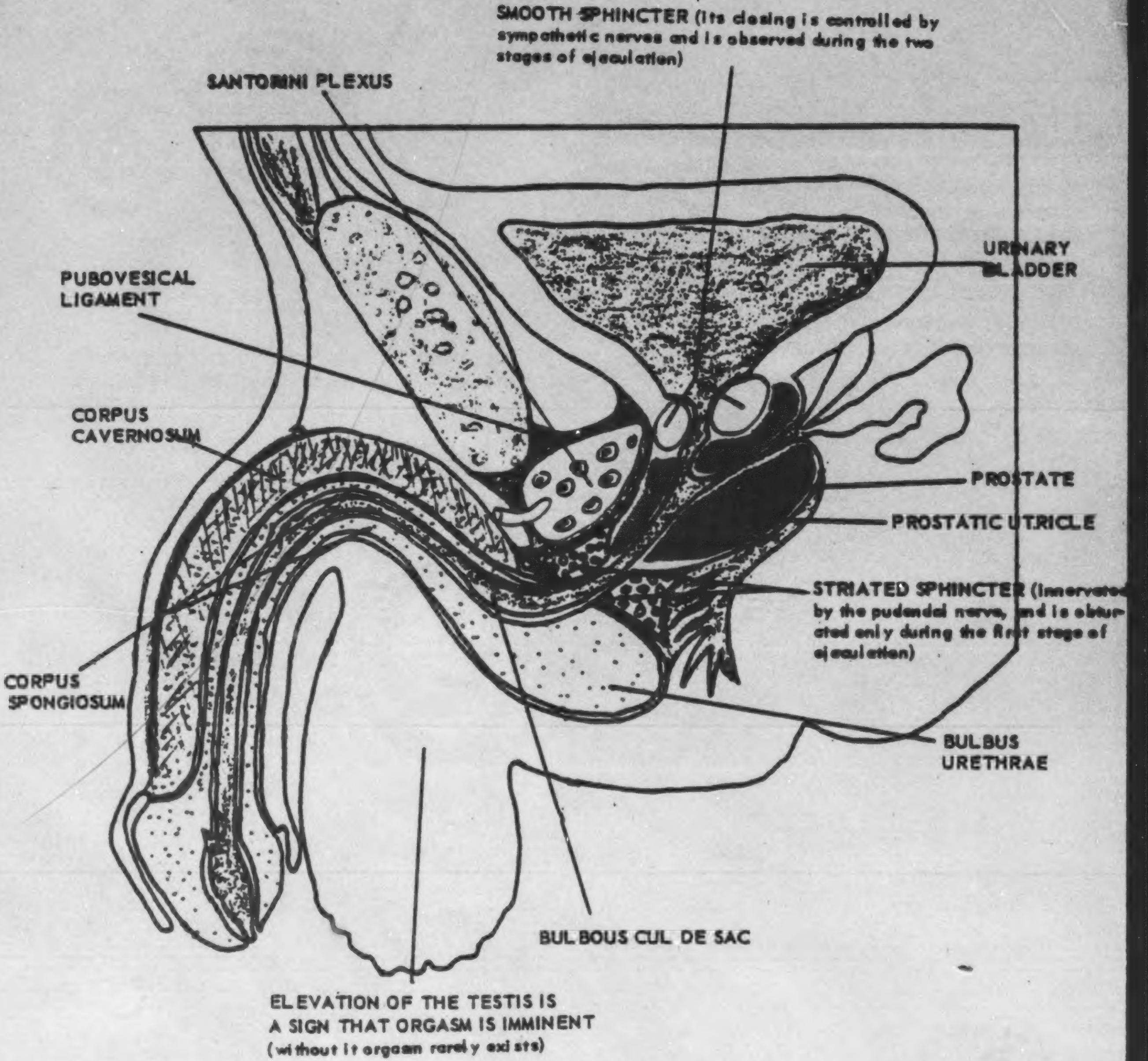

AHI.
VHI.
I
A.C.
VDP.
II

FIGURE 5

The intracavernous arteriovenous shunt only comes into action during erection. In repose the arterial and venous vessels are joined by anastomosis outside the erectile bodies.


GLANS
CORPORA CAVERNOSA
PUBIS
CORPUS SPONGIOSUM CONTAINING THE URETHRA
BULBUS URETHRAE (provided with powerful muscles whose contraction causes erection)
ISCHIOCAVERNOSUS MUSCLES
ISCHIUM
BULBO-URETHRAL GLANDS (Cowper's glands)
PROSTATE

1st Diagram (RAY BRET KOCH)


SMOOTH SPHINCTER (Its closing is controlled by sympathetic nerves and is observed during the two stages of ejaculation)
SANTORINI PLEXUS
URINARY BLADDER
PUBOVESICAL LIGAMENT
CORPUS CAVERNOSUM
PROSTATE
PROSTATIC UTRICLE
STRIATED SPHINCTER (Innervated by the pudendal nerve, and is obturated only during the first stage of ejaculation)
CORPUS SPONGIOSUM
BULBUS URETHRAE
BULBOUS CUL DE SAC
ELEVATION OF THE TESTIS IS A SIGN THAT ORGASM IS IMMINENT (without it orgasm rarely exists)

2nd Diagram (RAY BRET KOCH)

2.2. - *The phase of orgasm* : The male orgasm is a subjective experience of culminating pleasure which usually - though not always - accompanies the second stage of ejaculation (a paraplegic, for instance, does not feel the subjective sensation of orgasm). This orgasm is brought about by contraction of the smooth muscles in the internal genitalia (the vas deferens, the seminal vesicles, the prostate, and the urethra) and of more specific muscles in the base of the perineum (the bulbospongious and ischiocavernosus muscles).

Ejaculation takes place in two stages :

- a filling-up stage ;
- an expulsion stage.

During the filling-up stage, the smooth sphincter of the urethra which closes the neck of the bladder, and the striated sphincter of the urethra located at the level of the base of the perineum, are closed. The spermatic fluid expressed from the seminal vesicles and the deferential ampullae is put under pressure in the prostatic portion of the urethra. At this moment the man has the feeling of no longer being able to control his ejaculation. The spermatazoa which are steeped in the highly alkaline secretions of the prostate acquire a mobility and vitality which enable them to travel through the acid zones of the vagina.

Then come the expulsive contractions, averaging from three to five, of regularly decreasing intensity ; they follow one another at intervals of 0.8 seconds. The striated sphincter, which opens at each expulsion, lets through jets of seminal fluid which can be projected more than 60 cm in the open air. The quantity of sperm emitted varies from 2 to 5 cc^3.

According to Masters, the pleasure of the orgasm is in direct proportion to the amount of the ejaculate. Some authors contest this opinion. The consistency of the fluid ejaculated is sometimes a problem to the patient ; it varies from one individual to another, and depends essentially on the frequency of ejaculation.

Other muscular contractions may be observed in the man : the contractions of the rectal sphincter are more or less constant. There is a general increase in muscle tone, which we shall also find in the woman.

The occurrence of ejaculation, which as we have said is under the primary control of the sympathetic nervous system, induces arterial vasoconstriction which causes erection to cease after a short lapse of time. Erection regresses in two stages, and is usually followed by a refractory period which varies in duration from one subject to another.

SEXUAL PHYSIOLOGY IN THE WOMAN *

G. TORDJMAN

The woman's sexual response follows the same process as the man's. It transforms the potential and dry cavity of the vagina into a welcoming and well lubricated nest for the penis. It also consists of the two classical phases of excitation and orgasm which have been described in the preceding pages.

1 - *The phase of vaso-congestive excitement* -

The vagina is the first female genital organ to react to sexual desire, even if the initial stimulation has its source elsewhere. Within 10-30 seconds, any effective sexual stimulation is followed by :

a) a vaginal lubrication whose intensity is proportional to the intensity of the desire : a mucus-like substance exudes through the walls of the vagina and coalesces to form a smooth lubricating surface inside the whole of the vagina, like beads of sweat on the forehead. Such lubrication appears to be repeated slowly from one intercourse to the next.

It was long thought that this secretion came into the vagina from the cervix or Bartholin's glands. We now know that this is not so. Although the mechanism is still not clearly elucidated - particularly the reason why this moistening stops after the first few minutes of excitation - there is no doubt that it stems from a congestive process which is comparable to, but not exactly the same as, that which is responsible for erection of the penis.

Indeed, the Malpighian epithelium of the vagina, which has no glands, does not secrete anything. It must therefore be a transudation through the vaginal mucus stemming from the congestion of the arterial and venous blood plexus which form a close network around the vagina (see Figure 1). This vascular congestion is not, as in the man, confined to the areolae of the corpora cavernosa and spongiosa. The vascular oedema, which is much more diffuse, engorges the internal and external genital organs and spreads to the whole pelvic area.

b) This vascular oedema causes the following changes : enlargement of the vaginal cavity ; the walls of the inner two-thirds of the vagina separate to create a vaginal barrel, a kind of «internal erection», which pushes the uterus up and backwards and produces a «tent effect» with negative intravaginal pressure, while the walls of the outer third of the vagina thicken and become engorged, during excitation, to form the «orgasmic platform» which tightens the vaginal orifice.

The opposite reactions of these two parts of the vagina - pelvic and perineal - derived from different embryological buds., are an indication of certain physiological

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* From *Cahiers de Sexologie clinique*, 1975, *1*, no 5-6.

c) The clitoris undergoes considerable changes : during this excitement which may last from three to six minutes, the glans clitoridis increases its blood flow without increasing very much in size (it is only perceptible visually in less than 50 per cent of cases). The base of the clitoris rises a little and flattens back. It is particularly the corpus clitoridis, made up of the meeting of the two corpora cavernosa, which is dilated like a leech and is thus much easier to find with the finger.

When the excitement phase continues, the glans clitoridis is raised and retracts beneath the cutaneous flap which provides it with a kind of cape. This original and constant response indicates how effective sexual stimulation is, and is usually the prelude to orgasm. It must not deceive the male, who may be put off his bearings by the loss of the clitoral landmark and stop stimulating this area at the wrong moment.

d) At the same time, the pudendum muliebra opens out :

- the labia minora, engorged with blood, give proof of their elective erogenicity : they increase two or three times in diameter and soon turn a bright pink colour, which is the necessary and constant sign of imminent orgasm. This reaction, called «sex skin» in the words of Masters, is always present in the woman who reaches orgasm. It may however vary in intensity according to whether the woman is nullipara or multipara ;
- the engorged labia minora push back the labia majora which swell like cheeks and part, as though partially to open the vaginal orifice.

e) The mammary gland is primarily affected by this vascular congestion in the woman, and responds with three alterations :

- an erection of the nipple, which becomes hard and pointed ;
- swelling of the pigmentary areola which in the pre-orgastic stage may appear to absorb the erection of the nipple ;
- finally, congestion of the whole of the mammary gland, which may make the brassière feel uncomfortably tight.

2 - *The orgasmic phase* -

As in the man, the female orgasm involves contraction of specific smooth and striated muscles, which takes place 2-4 seconds after the woman has realized that her orgasm is beginning. The subjective experience of the orgasm can be of such intensity that it causes a loss of control in the woman.

The pelvic diaphragm contracts in a series of regular waves (5-15) at intervals of 0.8 seconds. The perivaginal muscular fascia particularly involved are divided into three groups (see Figure 2) :

- the perivaginal muscles, known individually as the pudendum muliebra constrictor, the urethral sphincter, and the bulbocarvernosus muscles, tighten on the penis or allow themselves to be distended to let the newborn baby through (whence the possibility of an orgasm during childbirth, as was thought by Groddeck and as some recent observations indicate) ; the contraction of these muscles corresponds to pelvic beats of the vaginal platform ;
- the anterior group of muscles is represented by the superficial fascia of bulbospongious muscles which are inserted on the inner sides of the corpora cavernosa of the clitoris ;

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and pathological phenomena.

The ampullar dilatation of the inner two-thirds of the vagina allows the glans penis, which is not in direct contact with the walls of the vagina, to maintain the liberty of its sideways movements. Only the orifice and the outer third of the vagina, whose walls are swollen by desire, grip the penis. It is thus solely on the closeness of this contact that the subjective sensations of a narrow or wide vagina depend. Multiple pregnancies or vaginal hyperlubrication may blur these sensations of contact between the penis and the outer third of the vagina.

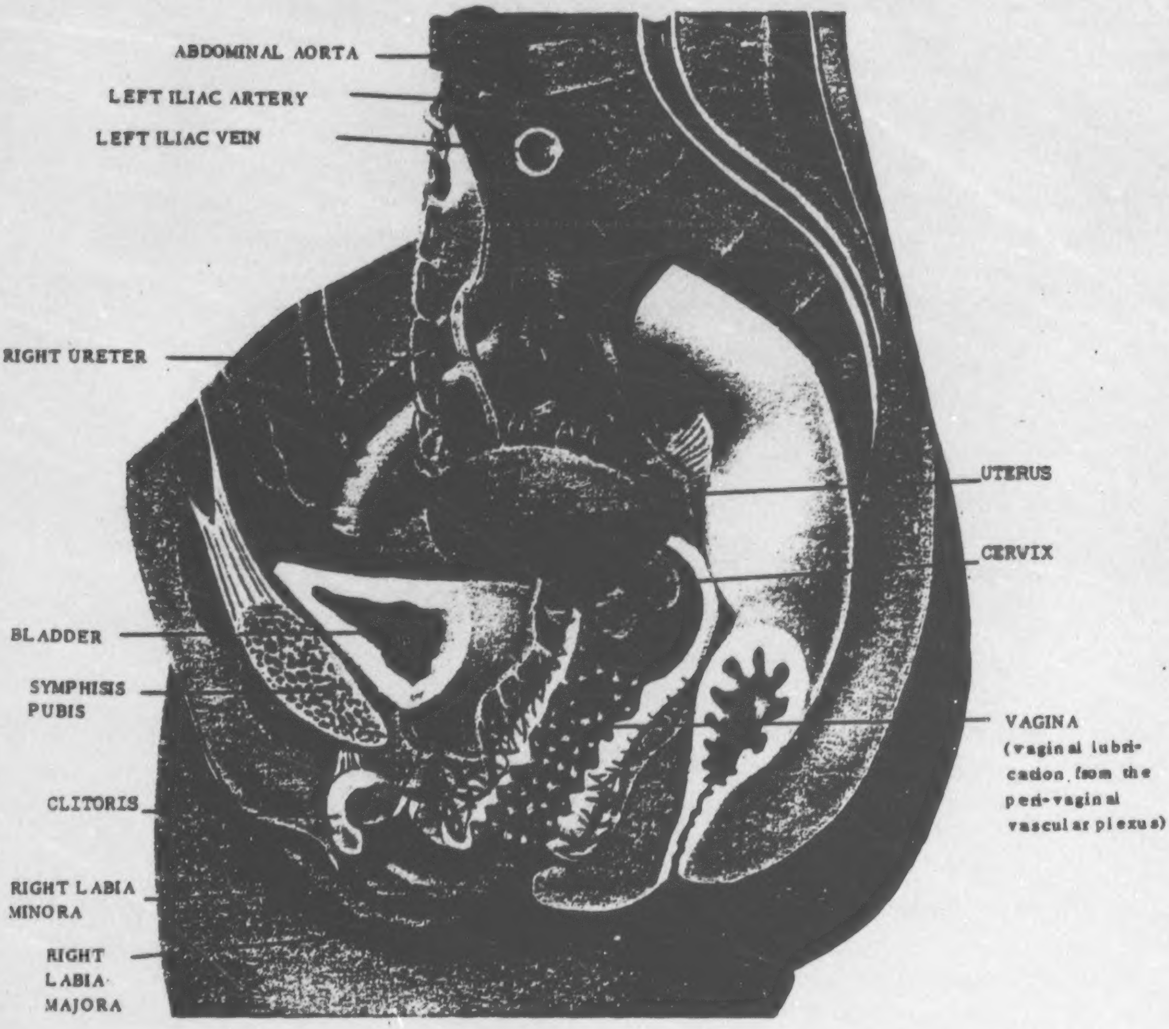
ABDOMINAL AORTA
LEFT ILIAC ARTERY
LEFT ILIAC VEIN
RIGHT URETER
UTERUS
CERVIX
BLADDER
SYMPHISIS PUBIS
VAGINA (vaginal lubrication from the peri-vaginal vascular plexus)
CLITORIS
RIGHT LABIA MINORA
RIGHT LABIA MAJORA

Figure N° 1 (Drawing by Ray BRET KOCH.)

- the sphincter ani externus, whose contraction is usually synchronous, and the more deeply located levator ani muscle, put pressure on the wall of the vagina, which explains the aptitude of some women to achieve an orgasm by pressing their buttocks together. This synergy shows the good results of ano-vaginal exercices, even in women with a normal muscle structure.

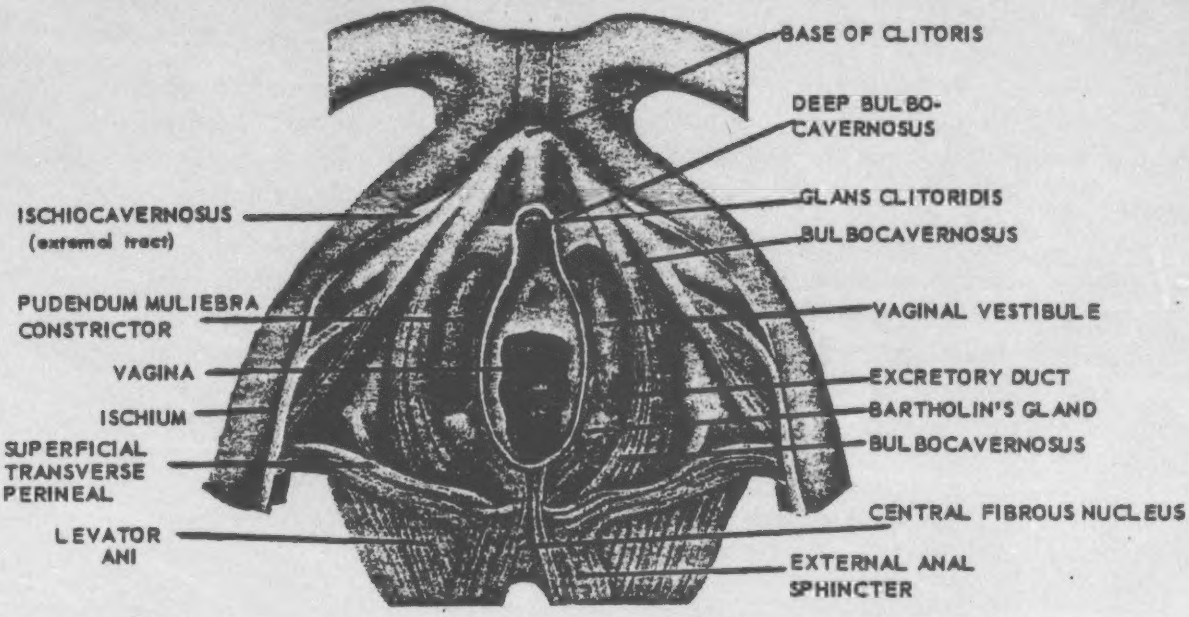
BASE OF CLITORIS
DEEP BULBO-CAVERNOSUS
GLANS CLITORIDIS
BULBOCAVERNOSUS
ISCHIOCAVERNOSUS (external tract)
PUDENDUM MULIEBRA CONSTRICTOR
VAGINAL VESTIBULE
VAGINA
EXCRETORY DUCT
ISCHIUM
BARTHOLIN'S GLAND
BULBOCAVERNOSUS
SUPERFICIAL TRANSVERSE PERINEAL
CENTRAL FIBROUS NUCLEUS
LEVATOR ANI
EXTERNAL ANAL SPHINCTER

Figure 2 (Drawing by Ray BRET KOCH.)

The muscular contraction also involves the smooth muscles of the internal genitalia : the oviduct, the uterus, and Skene's glands.

The uterus goes through rhythmical up-and-down movements which cause the cervix to bathe in the seminal pool. This reminds us of the Ancients' claim that the «uterus est anima sperma desirans». In fact, recent experiments would seem to prove that there is a negative pressure after the second orgasm which may suck in the sperm. In Fox's view, there exists a postejaculatory orgasm which only shows in regular undulating contractions of the uterus, with no contractions of the vaginal platform. This orgasm may be linked with the action of seminal prostaglandins, or else with the mechanical action of the penis on the uterine cervix.

The adductor muscles of the thighs can be activated at will by some women who masturbate by crossing their legs. Their tonic contraction is usual during orgasm. In this case it is not always possible for them to change their habit of masturbatory orgasm with thighs together into coital orgasm with their thighs apart. It is true that woman is the only female in the whole of the higher animal kingdom who practises coitus with her thighs parted. Lastly, a generalized muscular spasm may occur, showing as a facial grimace and contractions of the hands and feet, known as involuntary carpopedal spasm. The cord of the cervical muscles is an easy indicator for this generalized contraction.

The biphasic sexual response is thus to be observed in both sexes. It is accompanied by general reactions which are common to both man and woman :

1. During the excitement phase cardiac rhythm reaches 100-120 beats a minute, and may culminate during orgasm in 160-180 (the increase varies generally by 20-80 beats a minute).

2. Arterial pressure, especially maximum, increases from 3 to 10 cm Hg, the minimum from 1 to 3 cm Hg, and culminates at the moment of orgasm.

3. Respiratory frequency often reaches 60/ minute at the moment of orgasm. Hyperventilation is the rule in both sexes, but in the woman some periods of apnoeia may be noted immediately before orgasm, indicating its dramatic expression. It may be that hypocapnia as a result of hyperventilation promotes an orgasm by initiating a tetany.

4. Any part of the skin can be an erogenous zone, and is involved in the general vaso-congestion, as shown by the sex blush and hypersudation. Morbilliform erythema appear during the phase of excitation on the abdomen, the thorax, and the neck, and sometimes spread to the cheeks and forehead. Hypersudation of the palms of the hands is manifest to the extent that it is a criterion for measuring sexual desire.

3 - *Differences* -

In spite of these striking similarities, however, the sexual responses of the man and of the woman differ in the following ways :

a) The vaso-congestive phase, which indicates desire, is as we have seen more diffuse and generally longer in establishing itself in the woman than in the man. Desire in the man shows itself more abruptly, but paradoxically is seen clinically to be more vulnerable. In general, the woman lubricates her vagina more easily than the man achieves erection.

b) The contractile phase (which in the man corresponds to the second stage of ejaculation and in the woman to orgasm) is easier in the male as though in compensation. The female orgasm is more sensitive to inhibiting factors. It may also be accompanied by an incontinence of the bladder which is in no way pathological. The man, on the other hand, is incapable of urinating at the moment of orgasm unless there is an anatomical or functional flaw in the smooth sphincter of the urethra ; and even after ejaculation a brief period of retention may be observed.

There are different types of female orgasmic curves : one is comparable to that in man - the abrupt rise of desire starts an orgasmic wave which is quickly resolved. In a highly sexed woman it may consist of five to fifteen contractions which are proof of the intensity of the orgasm. Sometimes a trance of several seconds may be observed, together with the loss of a sense of reality to a varying extent.

c) Finally, the essential difference is that after ejaculation, and only after total ejaculation, the man has a refractory period during which sexual stimulation of any kind is completely ineffective. This refractory period may be of extremely variable duration; it may last a few minutes in the adolescent, or even be non-existent in the adult ; it may last several hours or even a whole day, and in an old man it may be as much as a year.

On the other hand, as Ellis first thought and Kinsey confirmed, the woman has a multiorgasmic capacity. Unlike male receptors, which no longer respond after ejaculation, the woman's erogenous zones usually - though not always - become active again within a few seconds if sexual stimulation is continued with no interference by psychological factors. A second, third, or fourth orgasm at very brief intervals is not uncommon. The «clitoral replay» by continuation of sexual stimulus is even considered by some to be a natural physiological phenomenon (Guillerm).

This female specificity is easily explained by the fact that the woman does not ejaculate. Nowadays, however, it has been observed that some men have developed an aptitude for multiple orgasms. They manage to dissociate controlled ejaculation by closure of the striated urethral sphincter from urethral contractions which are sufficient to produce a subjective sensation of orgasm.

d) Hormonal changes : It has been shown that there is a greater increase in the level of plasmatic testosterone in man during coitus than during masturbation ; no change in LH has been observed.

Are there retrospective indications of orgasm ?

In the man, the loss of erection which takes place in two stages has obviously less importance than ejaculation, although the latter is not synonymous with orgasm.

In the woman, it is not so much the detumescence of the labia majora and labia minora, the re-emergence of the glans clitoridis, or the immersion of the cervix in the seminal pool which the partner cannot appreciate. The best retrospective indication of orgasm in the woman is the residual erection of the nipple, which regresses less in proportion than the oedema of the pigmentary areola. In some women shortly before childbirth, a discharge of milk under the effect of oxytocin may sometimes be observed. In the woman, the phase of resolution lasts proportionally as long as the vaso-congestive phase; when excitation has lasted for a long time a certain amount of genital tension continues even after the orgasm, which in some cases may explain a certain sexual insatiability.

4 - Mechanism of the female orgasm -

Clitoral-vaginal synergy : Orgasmic dysfunction in the woman is more easily understood if it is accepted that the female orgasm is a reflex which sets in motion a clitoral—vaginal synergy. Like any other reflex, it brings into play a component of sensitivity and a motorial component. This reflex arc connects the sensitive receptive area of the clitoris with the area of the perivaginal muscles..The clitoris, amply provided with Krause's corpuscles (corpusculae bulboideae), induces an intense peasure which is often highly localized. This pleasure leads the woman to continue her prospection of erotic sensations, including those produced by intravaginal proprioceptive tension. This threshold of excitability is under a twofold challenge : a temporal challenge, implying a continuous stimulation in time ; and a spatial challenge, implying an inflow of sensations from the diffuse erogenous zones. When the threshold of sensitivity - varying greatly from one woman to another - has been reached, rhythmical and involuntary contractions of the perineal and perivaginal muscles take place. The contractile wave which beats like a heart in the area of the vagina then floods into the whole of the pelvis and subsequently throughout the body.

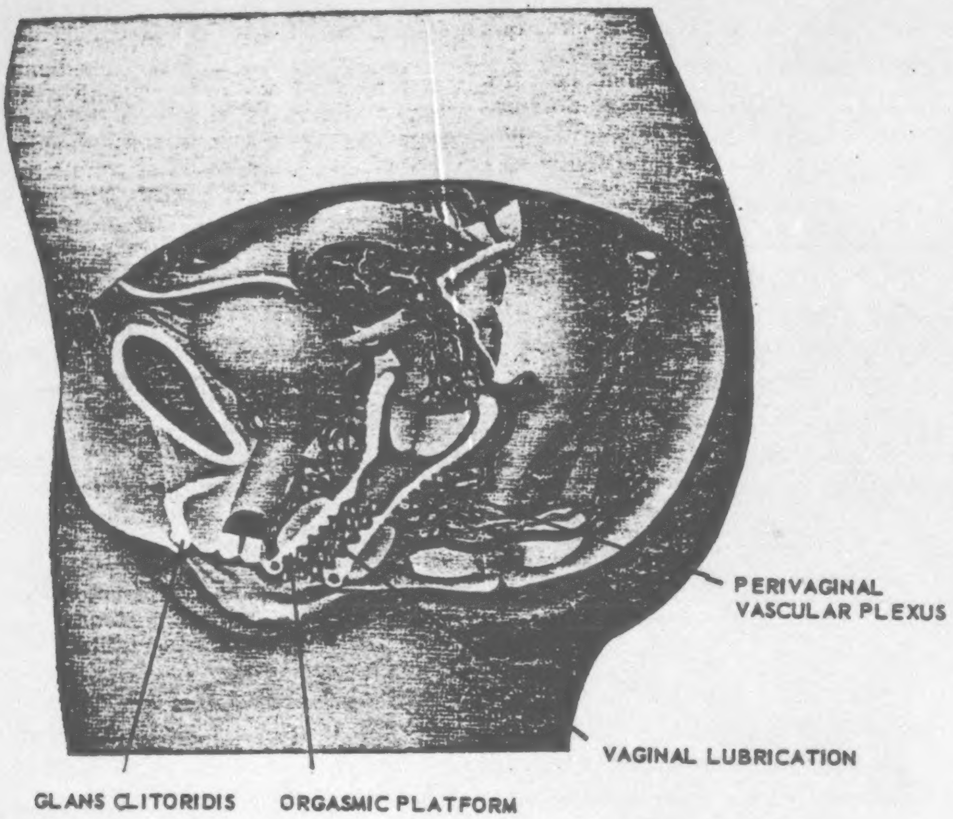

Figure 3

(Drawing by Ray BRET KOCH.)

Clinical experience shows that clitoral or periclitoral stimulation is indeed the key to the female orgasm. The clitoris is in fact the primary receptor of female erogenicity and at the same time the messenger of this very intense and sharply focussed pleasure (a deep suffusing warmth in the pelvic area which creates a vaso-congestive tension and an acute need to discharge it).

Even during coitus it is probable that clitoral stimulation, caused by contraction of the labia minora, remains the determining factor in the female orgasm although the woman experiences vaginal sensations especially at 60° and 120° of her vaginal orifice. The clitoral flap, analogous to the penile prepuce, is indeed connected directly with the labia minora. Furthermore, the folds of the labia minora are inserted directly into the lower side of the clitoris. In addition, penetration allows better synchronization of the contractions of the three groups of perivaginal muscular fascia.

Orgasm is thus released by polymorphous clitoral stimulation (tongue, coitus, finger, fantasy, or vibrator), and is achieved by contraction of the perivaginal muscles. Thus we have a comparison with the male orgasm, which is released by stimulation of the penile glans and corpus, and is achieved by rhythmical contractions of the smooth muscles of the genitalia and the perineal striated muscles. The female orgasm may thus be compared with the cornean reflex : the sensitive stimulation of the cornea innervated by the trigeminal releases occlusion of the eyelid, innervated by a branch of the facial nerve. And no-one would think of asking a patient who blinks his eyes whether it is a cornean or an eyelid reflex.

Despite the work done by Masters, some eminent physiologists maintain the hypothesis of an independent and autonomous vaginal orgasm. We have already mentioned the hypothesis of Fox, of a uterine post-ejaculatory orgasm. It is thought that some women have developed the aptitude to achieve orgasm by direct contraction of the perivaginal muscles. In fact, these muscles contract whatever may be the original area of stimulation - clitoris, breast, labia, or fantasy. This perception of vibrations at the level of the vaginal platform give the woman the illusion of a vaginal orgasm. All studies of pathological anatomy have confirmed the small number of nerve ends and the absence of glands in the vaginal mucus. A woman can in fact experience an authentic orgasm in an artificial vagina. A distinction between two orgasms, one clitoral and the other vaginal, even if not based on physiological fact, nonetheless responds to a subjective and emotional reality.

The orgasmic experience would appear to hinge directly on the fantasy of penetration, and on the way the woman accepts, fears or rejects intromission of the penis, in the same way as contraction of the perivaginal muscles around an object causes more intense sensations than if the vagina is empty. It is thus understandable that the vagina should appear to be the seat of erotic awareness whereas the clitoris is felt to be the primary erogenous zone of stimulation. The myth of two orgasms has only been perpetuated because the original seat of the reflexogenic sensitive zone is in the region of the clitoris, and because the orgasmic contractions are perceived in the area of the vagina.

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SEXOLOGY AND MEDICINE*

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The distinction between sexology and sexual medicine is the same as that between gerontology and geriatrics. Sexology, the subject concerned with the numerous biological, psychological, sociocultural, moral and legal aspects of sexuality, is still young as a scientific discipline, although it is far from being so in clinical reality. When defining the limits of the subject, however, we should always bear in mind that each one of us has his or her own sexuality, over which the doctor initially has no more claim to jurisdiction than have the moral theologian or the jurist. In my opinion, the most that can be said is that the artist has a primary competence in this connection, for his creative intuition enables him to express what is common to us all. Sexual medicine exists only as the relationship between sexology and health or illness ; sexuality, on the other hand, is perfectly capable of doing without the medical approach, even if the meaning of the latter is extended to include medical psychology. If we do not accept this, we run the risk of lending colour to the thesis of Ivan Illich(10), who thinks it necessary to warn the rest of the world against the expansionist and power-seeking tendencies of the Moloch of medicine.

In contemporary daily life, however, more and more people with real or supposed sexual disorders turn to the doctor. Reproduction is nowadays the least important aim of sexuality, nor are special communication or particular pleasure exclusive goals ; sexuality has become primarily a way of expressing normality and social conformity. This is shown clearly by the way it is used - not to say « sold » - in our consumer society, particularly as a means of drawing attention to advertisements. The doctor's university training hardly entitles us to expect him to be able to cope with the problems of sexual origin that are common in everyday clinical practice, for with the exception of the Institute of Sexology in Prague (19) there was until fifteen years ago no medical institution devoted to teaching this specialty. However, it is impossible to always see clearly the perfectly natural links between daily life, sexuality and pathological disturbances unless one's eyes, ears and senses are just as much trained to do so as they are to diagnose somatic disorders. It is at this point that education is still very deficient ; an international seminar recently organized by the WHO (28,29) again showed that in most countries sex education is still either non-existent or extremely rudimentary (in some cases, the subject even has to be learned empirically). The following discussion will therefore emphasize two areas of special importance : firstly, the doctor's sexological training, and secondly, the clinical aspects (approaches to sexual disorders ; methods of therapy in current use).

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1 - *Historical review* -

Sexological questions were still on the fringe of medicine at the beginning of this century ; medicine was still very much enmeshed in generally accepted taboos and even had to support them, for instance by warning against sexual excesses detrimental to health. One of the most striking examples of this is a book published over two hundred years ago by the then very famous S.-A. Tissot (24), who claimed that masturbation is a vice leading to sterility, wasting of the spinal cord and even cancer. Even ninety years ago, a sexologist as respected as Baron von Krafft-Ebing could claim in all seriousness that every coital act that did not serve the purposes of reproduction should be considered a perversion (12). Medical concern for things sexual was limited to dealing with extreme psychopathological cases and reporting abnormalities of medicolegal interest. A false interpretation was then often put on the facts ; the compulsive masturbation of a mental defective in psychiatric care, for example, was treated as evidence that his brain had been damaged by sexual excesses. Thus, if sexuality was discussed at all, it was only in its pathological forms - as good a way as any of producing sexual repression.

There was also a widespread tendency, particularly in Latin countries, to connect sexual disorders with venereal diseases ; the result is that even today the majority of so-called sexologists in Italy are in fact venereologists, i.e. specialists not in sexuality but in its sometimes unpleasant side effects. An analogous confusion of concepts would mean, for instance, that toxicologists were taken to be internists ! As long as medicine had to deal primarily with emergency situations that were matters of life and death (epidemics, endemic diseases), there could be no question of its having any competence for problems concerning the quality of life - and it is of course in this category that sexual harmony really belongs. Sexual problems were more a matter for the father confessor than for the doctor (26).

Since then, the WHO has formulated a definition of the concept of sexual health* (28,29) analogous to their well-known definition of health in general.

2 - *Guidelines for education* -

On the occasion of a seminar organized by the World Health Organization (29), a number of specialists gave an account of the state of this aspect of medical training in their own countries. After detailed discussion a consensus was reached that may serve as a model for future initiatives and ideas.

In modern teaching of sexual medicine, more emphasis must be placed on normality than on deviations from it, more on sexual function than on the morphology of the genital organs. Furthermore, most attention should be paid to the common disturbances of function and not to the pathological extremes, which though interesting are very rare. It should be noted that sexual life is powerfully influenced both by psychological and by cultural and ethnic factors.

At the moment there is a trend towards inclusion of sexology in the medical curriculum. In most American universities the subjects is taught in the first year of training, while in Europe it more often comes at the beginning of clinical instruction. On both sides of the Atlantic, however, attendance is usually optional, and the few attempts that have been made to change this (e.g. in Los Angeles) have not met with any success. The subject is usually integrated into the curriculum by arranging for it to form a part of the course of lectures in psychiatry or gynecology, sometimes also of that in forensic medicine, social and preventive medicine, endocrinology or pediatrics. The ideal would be not to limit this instruction to medical students but to give it to everyone working in the health services. Who would then be included, and how and where this should be done, are questions to be decided in accordance with local conditions. Here in Geneva (2), an essential preliminary is the basic knowledge of medical psychology that every medical student is given in his first and fourth year of training ; after that, he has the option of taking part in a course on clinical sexology. In the same way, those training to be midwives, nurses, social workers and teachers in special schools receive 15-20 hours' sexological instruction as part of their own curriculum. We provide instruction not only to these groups, but also, for example, to biology teachers who have to give sex education in their schools, and to appropriate members of religious organizations. In some countries sex education is given to people who have special functions in relation to the public, e.g. trade union officials in Bolivia or policemen in New York (so that they will be more sympathetic to homosexuals, for instance).

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* «Sexual health is the integration of the somatic, emotional, intellectual, and social aspects of sexual being, in ways that are positively enriching and that enhance personality, communication and love».

As far as possible, teaching should not be authoritarian but should involve the active participation of the students themselves, as well as being orientated towards practical applications. It ought to be repeated at various stages of medical training so as to counter the many kinds of repression and distortion to which sexual life is subject. Should the occasion arise, modern methods of medical psychology (Balint groups, rôle playing, audiovisual aids) can help to stop sexual medicine from becoming technical or banal or from falling too much under the influence of psychiatry. A sex therapist's training lasts at least three years.

3 - *Clinical aspects* -

3.1. - *History-taking* -

The patient who consults a doctor because of some sexual disorder is no different from any other sick person. He either says openly what is on his mind or else conceals his problem behind somatic symptoms that are really a kind of cry for help. The therapist is therefore faced with an awkward task in which medical psychology is very important. Appeal is being made not only to his professional competence but also to his human and moral qualities. By being ready and able to listen attentively and sympathetically, he can recognize a latent sexual concern that is usually hidden behind psychosomatic symptoms (e.g. epigastric cramps, diffuse pains, asthenia, sleep disturbances, unmotivated depression, excessive anxiety reactions). The doctor must establish a relationship with the patient and yet also remain detached ; in this context a quotation from Garrone (7) is appropriate :

« Before summoning up the courage to come and talk to the doctor about his (or her) sexual problems, the patient has often already consulted numerous books on sexuality without being able to get any help from them. If the ignorance of these patients were merely misunderstanding and inexperience, it would be enough to enlighten them just as one initiates adolescents into sexual life. However, since their ignorance is in fact inhibition, the doctor must be a therapist, not a teacher ....

« Whatever his specialty, the doctor must never shrink from asking questions and restrict himself to simply noting the problems mentioned by his patient. It must not be forgotten that the patient is always embarrassed at having to talk about his (or her) sexual difficulties despite an outward show of self-assurance. Excessive reserve on the doctor's part only intensifies the patient's feelings of guilt. The fact that the doctor «talks about it» means that these problems are no longer regarded as being something embarrassingly abnormal but are looked at in a realistic manner that allows a useful dialogue to begin. Questions are therefore essential. They must be simple, direct, precise and concrete. As far as possible, medical terminology should be avoided. It is very important to get the patient to say exactly what he means, since he often uses certain words wrongly or takes refuge in the anonymity of some symptom. It is less embarrassing to say that one is impotent than to explain personal difficulties, which have always been thought of as inexplicable and exceptional ....

« ... The patient needs to feel that the doctor is really in command of the situation, that his suffering is understood as well as his symptoms. »

Such a cry for help presents special problems : the urgency of the appeal, its comprehensive character, and last but not least the patient's hope that a magical solution may be found. The number who fail to return after two or three consultations is higher among patients with sexual disorders than among those undergoing routine psychotherapy. It therefore seems advisable to spread history-taking over a number of consultations. In this way, the patient does not have the feeling that he is completely exhausted - and yet not cured - after the first «never-ending» interview. We decide on a course of treatment only after two or three consultations designed to reveal any organic causes or communication difficulties as well as any intrapsychic problems that have an effect on sexual life.

3.2. - *Diagnosis* -

3.2.1. Somatic factors. In 10-15 per cent of cases, a careful examination reveals that the disorder has a somatic etiology (e.g. diabetes mellitus). There is however no connection between erectile disorders in the man or anorgasmy in the woman and the severity of the metabolic disorder. The relatively high incidence of latent diabetes is indeed the only reason why we carry out regular glucose tolerance tests. Other factors that may be responsible, either wholly or partly, are chronic alcoholism (particularly if there is cirrhosis) ; disturbances of pituitary, thyroid or adrenal function ; loss of gonadal function as a result of accident or infection ; incipient multiple sclerosis ; and toxic injuries. Tranquilizers and antidepressants (particularly MAO inhibitors) may diminish erectile capacity.

An examination of the genital organs is essential : in men, structural abnormalities, varicocele, phimosis or anomalies of the frenulum must be looked for. In women, organic factors are rarely responsible for frigidity or vaginismus but play a greater part in dyspareunia associated with vaginal changes. Quite a few doctors assume from the start that a hormone deficiency is to blame, and some proceed to stuff their patients full of hormone and vitamin preparations, perhaps because of a feeling of helplessness when it comes to providing treatment or as a result of an unconscious defensive attitude. It should not have been necessary for the WHO to warn against the iatrogenic injury that may result from pointless prescription of these drugs.

3.2.2. Partnership. We should make detailed enquiries about harmony in relations between the partners and about the form of intimate communication between them. Many couples, despite the fact that they tell each other what has happened in the course of the day, are incapable of giving expression to their own feelings, sensitivities and emotions. Sometimes there is verbal contact,, but the physical contact so important in an intimate relationship is lacking. These inhibitions are to be found particularly in those social groupings in which a clear distinction is made between body and mind and only non-physical communication is considered respectable. In some couples, fear of aggressive tendencies and their destructive aspects suppresses all emotion - and therefore eroticism too. This is not a case of specific censorship, but of a general attempt to ward off aggressiveness and thus sexual desire or responses too. Paradoxically, the need for union seems to inhibit some partners who are very close to each other. Indeed, if they are too close the result may be «hand-to-hand fighting», in which the position gained is defended and clung to for fear of letting go and being abandoned. This is reminiscent of Japanese wrestlers, who hold on to their opponent in such a way that he is unable to move. In other words, before a dialogue can take place there must be room for the partners to interact. It can sometimes happen that tenderness degenerates into a kind of brotherly love that stifles eroticism by wanting to include everything in its embrace.

In the last ten years or so, the American school of sexology (Masters and Johnson - 16) has placed the emphasis on disturbances of the relationship between the partners inasmuch as American, culture-orientated psychiatry has been combined with psychosocial communication techniques and a form of treatment taken from family psychiatry. In France, Lemaire (13) has developed this procedure further along psychological lines ; in Geneva too we try to bring about an improvement in communication as an excellent way of preparing patients for many forms of sex therapy.

3.2.3. Intrapsychic factors. The psychoanalytic model, according to which the source of all life's difficulties (the sexual ones included) is to be found within the psyche, has been complemented, not superseded, by the attention paid to the relationship between the partners. Freud's (6) picture of sexuality is always marked by conflicts, and often becomes dramatic inasmuch as one can attain happiness only gradually (and sometimes cannot attain it at all !) by transcending the contradictions of the past and passing belatedly through the difficult stages of psychoaffective development ; particularly relevant here are the Oedipus complex and the identity crises of puberty. We shall return in our discussion of methods of therapy to the somewhat oversimplified present-day interpretation of sexual life, a view that represents human beings as being naturally good, happy and potent until society and its repression ruin everything. Obsessions of this kind are already to be found in the otherwise brilliant work of Wilhelm Reich (20).

In conclusion, a few clinical aspects of the subject of diagnosis may be mentioned :

- Premature ejaculation may be the result of phimosis (which causes local irritation or overstimulation) and is very disturbing to anxious people (secondary conditioning of anxiety). The immediate cause in 70-80 per cent of cases is anxiety in the man or communication difficulties resulting from fear in the woman. In 20 per cent the most important element is intrapsychic disturbances, particularly obsessional neurosis. The appropriate therapy can be chosen on the basis of a review of these possible causes.

- Vaginismus is only very rarely caused by an imperforate hymen or a congenital malformation ; usually it is the result of simple ignorance of her own body in a woman who is also anxious and has a phobic personality structure. Often her partner is shy or suffers from premature ejaculation, so that he may even welcome the difficulty. Fear of penetration by the partner sometimes conceals a fear (conscious or unconscious) of being taken over, of giving up her own ego. Vaginismus is then certainly neurotic, but is also a form of protection against disintegration, a last defence in the battle to preserve an intact self capable of compensation.

These examples should suffice to show the importance of a detailed analysis of the situation. Such a «comprehensive model» enables us to see the symptom in the context of the patient's total personality or of the disturbance of communication between the partners or within a family (27). Between the lines, however, the fundamental problem of all psychosomatic medicine, perhaps indeed of all medicine, is here still clearly discernible : the great difference between treating the symptom and curing the patient.

4 - *Therapy* -

Treatment may be divided schematically into three categories : sex education, sex counselling and sex therapy proper.

- Sex education alone probably has an adequate therapeutic effect in many cases. In the interests of clear and precise information, the language used should be comprehensible and scientifically correct, and modern educational methods should be employed. This is the form taken by sex education in schools, courses to prepare couples for marriage, and the psychosomatic preparation for childbirth that is given to pregnant women.

- Sex counselling consists in a dialogue with the therapist, who does not however direct the interview but merely intervenes to help with difficult decisions - from contraception to marital crisis. Interventions of this type act as an «auxiliary ego» that makes it easier for the patient to choose between several possible courses and enables him to choose the one that best fits his own ego.

- Sex therapy proper consists of such special procedures as drug therapy, conditioning techniques and physical therapy, psychotherapy and couple therapy.

4.1. - *Drugs* -

The development of an effective aphrodisiac remains one of the aims of drug research ; it must be admitted that the substances available at present are unsatisfactory. In a number of cases, i.e. those in which the sexual disorder is associated with or results from anxiety or depression, the disorder has to be treated indirectly by means of antidepressants or tranquilizers. It should not be forgotten that some antidepressants, particularly the MAO inhibitors, may affect erectile capacity.

Now as ever, the best aphrodisiacs seem to be imagination and originality. If it is true that amphetamines too are effective in this respect, the risk of abuse limits their usefulness. In our opinion, doubts about the efficacy of yohimbine are justified. The possibility of using pituitary hormones as aphrodisiacs has recently been discussed (14,15) (a development that may offer some consolation for the fact that disappointing results have been obtained with the peripheral sex hormones despite the huge quantities prescribed). Apart from cases of varicocele or definite hormone deficiency, the only indication for which we prescribe testosterone is as replacement therapy (in low dosage) in elderly patients. A single injection of testosterone after menstruation increases libido in some women, a result that can also be attained by continual administration of low doses (8) ; but, though successful, this method probably causes endocrinological side effects.

4.2. - *Conditioning techniques and physical therapy, psychotherapy* -

A whole range of procedures is aimed at the rapid elimination of sexual disorders by means of physical or psychophysical treatment. Autogenic training, acupuncture and conditioning techniques involving faradism and stimulation of the nasal mucosa are examples of these methods. Regular voluntary contraction during micturition is meant to help strengthen the perineal musculature, while progressive dilatation (stretching) is used to cure vaginismus. We lay stress on massage and training in body language (with individuals or couples). The method is partly derived from oriental techniques ; we became acquainted with them in California (25). They are designed to create a dialectical relationship between perception of the body (or individual parts of the body) and the importance that is attached to this perception and that is a precondition of physical and psychological well-being.

Everything that psychiatry has to offer has also been tried in the treatment of sexual disorders : behaviour therapy, group therapy, psychodrama and hypnosis. Behaviour therapy either eliminates inappropriate behaviour (deconditioning) or seeks to achieve more suitable and more satisfying behaviour (reconditioning). Biofeedback (BFB) is today probably the most advanced technique : it uses a monitor to bring about an acoustic and visual confrontation with the anxiety that caused the sexual disorder in question (3). Such a concretization seems to allow a feedback mechanism to function and thus perhaps enables the cortex to regulate itself and its subordinate systems. We have modified the techniques of hypnosis in such a way (1) that the trance state that results can be used to conjure up pictures of certain sexual situations that the patient would not be able to deal with in the waking state. In addition, hypnosis can be used to produce or enhance pleasant sensations (e.g. warmth) and then to concentrate them gradually on the lower abdomen, so that they become a path leading to a positive erotic response (particularly in primary anorgasmy). Finally, mention should also be made of the various psychotherapeutic techniques that can be used ; logotherapy (5) is only one of many. Such procedures may be considered sufficient in cases where the sexual disorder has relatively little connection with the patient's personality. If disturbances of libido are caused by serious privation or inhibitions, however, orthodox psychotherapy and classical psychoanalysis are indicated. Freud is therefore still the main pillar of modern sexual medicine, and an acquaintance with his writings is an essential part of the doctor's background knowledge. The development of psychoanalysis brought with it the discovery of infantile sexuality and of the importance of imagination. Masters and Johnson take into account quantitative aspects of the sexual response, while Sigmund Freud was primarily interested in its qualitative side. As was to be expected, then, only psychoanalysis is of any use in sexual deviations which cause suffering to the patients so afflicted and which they therefore would like to see cured (18).

4.3. - *Couple therapy* -

Couple therapy was introduced by Masters and Johnson (16) over ten years ago. It has developed in two directions, one of which (the Californian model) placed the emphasis on the physical and sensory aspects while the other (the Atlantic model) stressed the psychodynamic side (11). What follows is an attempt to give a summary account at least of the way in which couple therapy is used and of how it works.

Treatment concentrates initially on the couple ; each partner is the other's therapist, an arrangement that is usually successful because, as is well known, sexual disorders are often caused by disturbances of relationships. Even if there is a deep-seated intrapsychic conflict, it is sometimes useful to shift the therapeutic emphasis from the isolated individual to communication between individuals, particularly if significant defence mechanisms have already developed in relation to the symptom. The question whether a couple undergoing therapy should if possible be treated by a male and a female therapist working as a team belongs in the specialized literature and is outside the scope of this review.

A particular advantage is the increased importance attached to sensory communication between the two partners, particularly if there is estrangement in oral or written communication. Better results can be obtained by a therapy that is continuous and concentrated within a few weeks. Masters and Johnson planned daily sessions (Saturdays and Sundays included) over a two-week period. Some flexibility has been introduced into this schedule ; in Geneva, for example, after one or two diagnostic interviews the patients come to us every day during the first week and then at longer intervals, depending on the way therapy develops. It is interesting to note that distance from familiar surroundings and ingrained habits has a beneficial effect in itself. We have seen this in couples from aborad for whom crossing the nearby border on their journey to Geneva constituted a symbolic act of therapeutic significance.

While the aim of centres on the East Coast of America is to integrate psychodynamic elements and principles of behaviour theory into therapy, the Californian schools of sexual medicine attempt to solve each individual problem directly by means of body language. Therapists using the latter method find that non-erotic massage, rôle playing and exercises designed to refine the patient's capacity for sensory experience are often effective ways of uncovering true sexual sensitivity. This is also the thinking behind the use of audiovisual aids (particularly erotic films), the purpose of which is to reach archaic personality structures ; the response is frequently more intense than that to purely verbal communication. This elimination of an intellectual defence mechanism is useful not only in people whose imagination is underdeveloped but also in patients with character defects or psychosomatic disorders.

Incidentally, encouragement and prohibition can be used very adroitly in this kind of therapy. In the first phase, the partners are urged to talk about their sexual problem but without touching each other. Later on, they should each run their hands over the other's body, but avoiding the genital area. Thereafter they are allowed to caress each other but they must always give verbal expression to their feelings while doing so. It is only towards the end of treatment that the partners are guided in the direction of performance of the sexual act itself. This selective system of prohibitions that is dismantled step by step is particularly helpful to frustrated patients who are burdened with myths about performance when they come for sex therapy : they imagine that they must be able to do everything successfully - and immediately at that. Stekel (23) long ago recognized the aphrodisiac effect of transgression of prohibitions and therefore forbade impotent men to indulge in sexual activity.

In Europe and, above all, in Latin countries the American methods have either been dismissed as far too technical or ridiculed as games of gymnastics. Colleagues from Mediterranean countries have often asked us whether this kind of therapy does not forget about love. In my opinion, a moral value can be attached to an emphasis placed purely and simply on harmony between partners. Furthermore, it happens all too often that a stereotyped, idealized attitude to love and marriage prevents the partners from achieving genuine personalized communication. In such cases, the therapist's job is to restore the disordered function to normal, whether it be sexual or not ; it is then up to the partners themselves to decide how to use it.

5 - *Defensive attitudes on the doctor's part* -

In every relationship between doctor and patient, it is essential that the therapist give thought to the way in which he reacts to the patient's behaviour and attitudes. Mistakes in therapy can be avoided in this way, of course, but another advantage is that the doctor may find pointers that lead him to diagnose some latent disorder. Most doctors have a notoriously defensive attitude to sexuality, perhaps through ignorance (the resulf of inadequate training) or else because of their own conservative tendencies. From the first, they prefer to avoid discussions for which they do not feel qualified and which could waste valuable time. As a result, the patient's sexual history is not even taken, his distressing problem is played down - and if there is no other way, he is sent to a psychiatrist or stuffed full of drugs. I hope the reader will forgive me for this caricature ; my aim is not to denigrate my fellow doctors but to make clear to them that in this situation as in others a sense of humour usually produces more satisfactory results than do extremes of deadly earnest. I believe that the general practitioner, the gynecologist and the urologist should be able to recognize, and give appropriate treatment to, at least 50 per cent of patients with sexual disorders.

If a doctor's attitude towards the pleasure aspect of sexuality is ambivalent, he will find it difficult to deal with sexual problems, even perhaps with questions of contraception. He is in a difficult position, because sexology confronts him directly with pleasure while his whole professional identity is based on suffering. The production of pleasure seems to be an intrinsically different goal from the relief of suffering and the elimination of discomfort. As a result of his personal commitment, of his vocation as an active director of events, the doctor is led to resist.

The therapist will also be faced with fear of this own voyeurism and of the temptations put in his way by a feeling of educational omnipotence. Older doctors and young interns often show an exaggerated reticence when they have to ask a couple questions about their private lives ; this is particularly evident in the context of the new couple therapy. There is no problem about telling a couple to perform sensitivity-enhancing exercises at home; but it is not at all easy to ask on the following day for a detailed report in order to detect any reluctance or difficulties. The desire for educational omnipotence is not restricted to patriarchal-minded, authoritarian doctors, for the sex apostles of the mass media, those prophets of the current sexual norm (i.e. their own), also exhibit it. What presumably affords a narcissistic satisfaction to these media-minded bringers of salvation only brings new problems and symptoms for their attentive congregation. In the last two or three years, for instance, we have seen a number of women in our practice who were perfectly capable of experiencing sexual satisfaction in intercourse but wanted to have several orgasms in succession, something put about as an ideal in magazines and sometimes even on radio.

The doctor may feel particularly inhibited in forms of sex therapy that demand physical contact (e.g. exercises in body language, relaxation treatment or massage). We have found that for some psychotherapists any physical contact is unpleasant, even for some who are doctors and have therefore been trained in the traditional medical manner to use their hands in examining their patients. The converse is also true : many gynecologists are no longer willing - or no longer able - to talk to their patients.

The mere fact that the therapist often finds himself facing a couple means that the traditional authority of the doctor in relation to his patient is modified in sex therapy. He must then be careful to avoid any partiality, and must not allow himself to be manœuvred into the rôle of either a judge or an accomplice.

A final point : sexology is no more an isolated field than is any other medical specialty : its scope should include the whole human being. It is practised in its ideal form wherever the various possible forms of sex therapy can be used by specialized treatment teams to meet the needs of different patients. However, since it is only attainable aims, and not wishful thinking, that can help us cope with the problems of everyday practice, we should make more frequent use of Balint groups (21) in this field, for these are an excellent tool that through communication and exchange of experiences between colleagues is sometimes capable of producing completely unhoped-for solutions to problems.

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CHAPTER IX

HEALTH EDUCATION

COMMUNICATION WITH WOMEN ATTENDING A MCH/BIRTH SPACING CENTRE

A. SOUKEHAL*

A resolution of the Twenty-first World Health Assembly[1] states that family planning is «an important component of basic health services, particularly of maternal and child health, and in the promotion of family health, and plays a rôle in social and economic development ; ... every family should have the opportunity of obtaining information and advice on problems connected with family planning, including fertility and sterility».

Birth spacing is an integral part of family health care, and is a preventive as well as a promotional measure since it can have a favourable influence on the health, development and wellbeing of the family and has a striking effect on the health of mothers and children.

In the field of birth spacing, health education may be defined as «a way of thinking and living that is adopted voluntarily, upon the basis of knowledge, attitudes and responsible decisions by individuals and couples, in order to promote the health and welfare of the family group and thus to contribute effectively to the social development of a country».

In the following pages, we shall attempt to cover very briefly the problem of communication with patients as it arises daily in a MCH/birth spacing centre. Let us first recapitulate some principles of the process of education in the individual.

Everybody has a natural aptitude for learning. This curiosity and this capacity for learning develop only when conditions are favourable ; this is often the case during a discussion on contraception in a MCH/birth spacing centre, and is facilitated by the fact that the activity meets the need of the individual patient.

Learning is the result of a personal effort by the patient, and this active participation in the educational process helps to provide such experience.

This can be achieved primarily by a relationship of confidence with the patient. In this relationship every effort will be made to satisfy the patient's needs, whether they be felt or expressed. This can only be achieved if, from the start, the person is treated as an individual - a human being with all her personal characteristics - whose personality must be brought out and accepted as it is rather than as one would want it to be. All the members of the health team are called upon for this purpose to have great sincerity and faith in their work ; this is the basis of any educational activity.

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(1) *Off. Rec. Wld Hlth Org.* 1968, no.168 (resolution WHA21.43).

1 - *A discussion with the patient* is the basis of the educational process. In a MCH/ birth spacing centre, such a discussion may take place in two ways :

1.1. - *The individual discussion* -

Schematically, this communication has two poles : the messenger, or transmitter (educator), and the receiver.

The communication may be of a passive nature, that is to say that it is one-way :

Messenger ⟶ Message ⟶ Receiver

To achieve the desired result, however, the communication must be of a more complex nature : there must be an exchange between the messenger and the receiver - a feed-back effect - as shown below :

Messenger ⟶ Receiver
(receiver) ⟵ (messenger)

During communication of this kind, an educational situation is created.

Methodology of individual discussion between the midwife and a patient enquiring about birth spacing. The art of successful interviewing is developed around the following points : *Observe - Listen - Question - Interpret.*

- *Observe* : A great deal of information can be obtained on a patient by observing her physical appearance during the interview :

. her expression, her way of holding herself, her walk, may reveal a latent or a patent disease ;

. her physical attitude may contradict what she says (when she is asked how she feels, she replies «all right», although her shoulders are drooping and she looks dejected...) ;

. she looks worried, anxious, or hostile (this hostility often hides nervousness or fear), or else she is relaxed and smiling.

- *Question* : By questioning a patient, it is very often possible to find out what her problems are.

. To ensure that an individual discussion is successful, it is essential to establish a good relationship with the patient ; to achieve this, one must introduce oneself to her, converse with her and call her by her name, be cordial during the interview, show interest in her comfort, concentrate her attention on herself, avoid distractions. In no case should this approach be «artificial».

. To find out what her problems are, put questions in such a way that the replies will not be stereotyped «yes» or «no» ; put the questions in her own way of speaking, and at her level ; avoid showing disapproval, and use an encouraging tone of voice if need be.

. Give the patient the opportunity to talk about what concerns her, and what her interests are, by giving her a cordial welcome and allowing her to concentrate on what interests and concerns her personally, using the questions «how ?» and «why ?».

. Listen to the patient . This may be the way to solution of her problems. (The patient's interests must come first and foremost).

- *Listen* : The interview must not be interrupted ; if the patient feels that the midwife is really interested in her problems, she will feel more at ease in describing them. It may happen, because of a socio-cultural context, that the midwife is the only person to whom the patient can turn to describe her personal problems. And it may be that the patient will find the solution to her own problems as she expounds them. Moral support may be all that the patient needs to help her realise that contraception is not after all such a complicated matter. For this reason, her interest must be kept up by putting in a remark or some advice from time to time without interrupting her unnecessarily.

- *Interpret and recapitulate* : Once the interview is over, the midwife must ensure that her advice and guidance have been thoroughly understood, so that the patient is able to see her problem in another light. The aim of the interview will have been achieved when the patient is able to repeat in her own words what she has had explained to her.

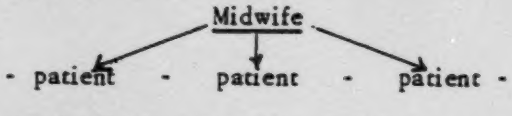
Various visual aids may be quite helpful to the discussion : photos, flannelgraphs, demonstration equipment to be manipulated by the patient, etc.

1.2. - Group discussion -

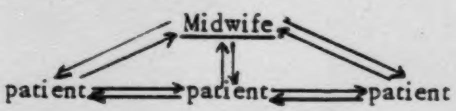
Day-to-day experience as well as scientific research show that individuals (whether adults or children) do not easily change their attitudes or behaviour ; health education activities must take this into account, and indeed all of us have found that most of the time brief advice given to a mother has no lasting effect on the way she brings up her child.

One of the great discoveries of social psychology is that change in behaviour is easier in a group setting : this is the theory of group dynamics. A group decision has a more profound effect on changes in behaviour of the members of the group than any action taken individually with each of its members separately. Children who eat hardly anything at home, once they are with other children (in a day-nursery, a school, or a holiday camp) have no further problems and behave like all the other children. In the same way, an adult's behaviour is frequently changed by that of the group (e.g. in ideas about what is in fashion, what is the vogue, what the neighbours do, or what is said or done by somebody who is known and respected).

This idea of group dynamics (three or more persons) is used in health education, where the various aspects of human reproduction can be brought up during a discussion between the midwife and a group of patients. Just as in an individual discussion, this group discussion may be passive :



But the «productivity» of the group will only come into play if there is collaboration between the «messenger» and the members of the group, and also among the members of the group themselves :



Finally, there is a certain group action according to the rôles played by the various members of the group. These rôles may be of three types :

- according to whether they concern the group's task : certain people take the initiative, others make a contribution, others are seeking information, etc.;
- according to whether they concern the constitution or the maintenance of the group : some people give encouragement, others provide conciliation, others join in, etc. ;
- according to the satisfaction they give to individual needs : some attack, others seek approval, and others only want entertainment.

By analysing group interactions it is possible to appreciate the difference in effectiveness of various groups. This is particularly useful when trying to evaluate the educational activity undertaken among a group of patients at a birth spacing clinic.

In practice, this method of communication may be limited by certain constraints : cramped or unsuitable accommodation for the MCH/ birth spacing clinic ; differences in educational level among members of a group ; embarrassment or extreme shyness of patients on problems connected with sexuality ; the group leader's language not appropriate to the audience ; different social and cultural values among the various members of the group, etc.

These factors, however, are not a reason for systematically rejecting this means of communication, especially if it is reinforced by audio-visual materials such as slides, flannelgraphs, a pelvic model, or demonstration equipment, which help to provide a practical approach to the problem.

2 - *Home visits* -

Home visiting as part of MCH activities is often the only way of reaching women and couples whom it has not been possible to reach otherwise.

During home visits, problems connected with contraception can be discussed with the patients. It should be noted that some people dislike discussing this type of problem in public, but are quite willing to discuss it when they are alone with health personnel in the privacy of their own homes. The methodology for individual or group discussion can then he applied.

Conclusion

It is essential that health education should be a permanent activity and suited to the circumstances. The means used are chiefly to inform, stimulate awareness, and motivate patients. The ultimate aim is to achieve a change in behaviour and attitudes.

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FROM KNOWLEDGE TO RESPONSIBLE BEHAVIOUR

P. LECORPS*

Sexual life, and more especially the sexual life of young people, poses problems throughout the world, both in industrialized and in developing countries.

The authorities are faced with problems of life and death every day :

- clandestine abortion and its after-effects of sterility and death ;
- accidental pregnancy in women or girls - the latter sometimes very young indeed - and the exclusion of these girls from formal education ;
- the spread of venereal diseases and the sterility resulting from them ;
- the encroachment of prostitution, and the commercial exploitation of women and even very young girls in the service of men.

On a more personal level, new questions are beginning to arise :

- dissatisfaction with the mediocrity of the quality of sexual relations ;
- women's desire to space childbirth and participate in their country's development without being pregnant or recently delivered of a child every year.

This is a problem which faces society as a whole as well as each individual considered separately. National authorities, to deal with these questions, think that they can be answered by « introducing health education », in somewhat the same way as the health authorities put forward health education as a magic cure for health problems : « we are going to inculcate knowledge in young people so that they will adopt responsible behaviour ». This is frequently planned by adults for young people.

To clarify the problems involved in sex education, we shall attempt to describe :

1. How young people prepare for sexual life nowadays.
2. How school can play a rôle.
3. The main lines of analysis which reflect sexual life.
4. Conditions for health education.

1 - *How young people prepare for sexual life nowadays* -

We consider that preparations for sexual life nowadays are made in family relationships in early childhood, and later on in extended social relationships.

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1.1. - *The development of the sexual function in early childhood* -

As soon as a child comes into the world, he discovers in successive stages first his mother's body then his own, and in this warm intimacy of two bodies clasped together, through familiar smells and sounds, an infant's emotions are first aroused.

The infant's first communication is through smells. His most important activity is suckling, and from the first feed onwards the smell of his mother is linked with having his need for air and food satisfied, that is, his primary needs pacified. His mother feeds him, washes him, and at the same time talks to him, smiles at him, fondles him and plays with him ; and in exchange the infant smiles and makes sounds in response to her words. His mother's voice calms him, pacifies him, and makes him feel safe ; her smell, and the rhythm of her movements as she carries him or rocks him in her arms, give him back his existential security.

When the time comes for weaning, his bodily link with his mother is broken, but a link remains in her smiles, gestures and words. Imperceptibly the child passes from the bodily exchange of being part of his mother to an exchange of language. Gradually the child starts moving around, he can come and go as he pleases, in his own world he is master of the presence-absence of the things which surround him, and master of his own presence in any place.

A little later, the child begins asking questions about the difference between the sexes, about birth, and so forth ; he receives his parents' replies with complete disbelief, and works out his own answers and his own theory on sexuality. A child's theories on sexuality stem from his emotional experience, and thus represent an important moment in his development.

The child then goes through an unconscious conflict situation with his parents. In psychoanalysis this situation is described as the « Oedipus complex », which we may define as the organized whole of the desires - both love and hate - that a child feels towards his parents. Through his childish desires related to seduction and death, and confronted with the taboo of incest, the child succeeds in distinguishing his own wishes from those of his parents and in becoming « I » by identification with his father's position.

1.2. - *The social environment and sex rôles* -

Psychoanalysis brings out the stages of personal growth of the child, but his human development remains conditioned by the social environment to which he belongs.

Within the family, whether its organization is based on monogamy or polygamy, whether it is a nuclear or an extended family, a child becomes familiar with the different rôles of men and women, that is, how a person of a given sex is expected to behave in a given society. Of course this « sex education » given by the family or the clan is never called sex education. Most people do not realize it is taking place. The first few years of life may however be considered to be a period when a child, without knowing it, is imbued with the governing rules which condition the quality of his adult sexual life.

The parents who thus exert the first basic influence on a child's development belong to a social whole which describes and defines educational behaviour. It may therefore be said that sexual life is also governed by the society in which one lives. Indeed, the sexual life of the members of a community is governed, established, and supervised by the entire social system. If traditional societies supervised the sexual life of our ancestors (marriage, birth, etc.), the same is still true today.

However, society as a whole is changing : decolonization, the exodus from rural areas, housing conditions, industrialization, the school system for young people and particularly the advent of schooling for girls, women's work outside the home, and recent scientific discoveries which make possible voluntary motherhood and therefore responsible fatherhood... we could continue indefinitely the list of indicators of social transformation which mean that relationships are no longer the same with parents and relatives or with the clan as a whole, that the age of marriage is higher than before, that the status of both men and women is changing, and that values with regard to sexuality have been modified, sometimes radically. This shows clearly that no sexual life exists unrelated to the history of the peoples of the world and to its cultural and social norms. The sexual life of each one of us has its roots in the society in which we live.

Each nation is therefore responsible for defining objectives for everybody's place in the national community for both men and women, for organizing the structure for looking after children and for their education, and for preparing the professional and social future of each member of the community. Every nation must therefore define its social institutions, and in so doing define the sexual life it will offer to its children.

Thus we see that the sexual life of young people is formed on the one hand on the basis of the emotions and attitudes of the parents, and on the other, on the basis of the social organization which authorizes it and makes its rules. How then can we define what collective sex education might be, and first of all is the school a place of choice for sex education ?

2 - *How school can play a rôle* -

School is a place where sexual life is lived intensely. The school directs the sexual life of young people. It organizes the life of young people among themselves. Whether a school is co-educational or whether boys' schools are separate from girls' schools, it is in any case an organization of encounters between boys and girls.

Furthermore, school is an important place for working out male and female rôles. Most schools have different channels for boys and girls (e.g. mechanics, needlework). To seek a common channel for boys and girls is a valuable way of contributing to the definition of male and female rôles.

As an institution, the school plays an educational rôle when it seeks an answer to problems of organization with regard to sex, everyday life, communication of information, and future professions.

We said earlier that the quality of sexual life is conditioned by the emotional links between parents and children in early childhood. However, school being a meeting-place between adults and young people often gives an opportunity for reshaping a child's position in his parental relationships.

At school, indeed, the rules on relationships between children and adults, and between children, boys or firls, and adults, men or women, are redefined. Between adults and children are formed the links of love or hate which will enable the child to attain full autonomy.

3 - *The main lines of analysis which reflect sexual life* -

What does sex education consist of ? Is there somewhere a collection of knowledge, objective scientific learning on human sexuality that might be imparted to children in much the same way as mathematics, and that would determine a new behaviour (when a child has been taught mathematics he can do additions, subtractions, etc.) ? What does a boy or girl who has taken part in sex education know how to do ?

On the theoretical level, there are several analytical approaches which reflect sexual life. It is indeed impossible to understand sexual life if sex (anatomical - organic) is isolated from the sexual person, if the sexual person is isolated from an encounter with another, if the encounter is isolated from the social organization which permits it, and if the social organization is isolated from the political decisions which have produced it.

It is thus clear that there are several analytical approaches which reflect sexual life. For convenience sake we shall pick out four :

Anatomical : physiological or, more broadly, biological ; this heading encompasses all systems of organization which cover the living body and its powers of creation (eroticism) and procreation.

Psychical : this covers everything that relates to the subject, the person, his or her individual past, perceptions, and desire.

Social : everything connected with the culture, the rôles and the status of men and women in that particular culture, the social classes to which they belong, etc.

Political : the whole range of choices of society which tend to produce a type of men and women, the structures of children's upbringing and education, the organization of work, the distribution of salaries, housing systems, etc.

Here is an example to illustrate what we have said about these approaches. In a meeting on sex education, a little boy of ten asked : « How often can you have a child : » Without thinking, the educator replied : « Every nine months ». We can see at once that this reply gives priority to the biological approach, whereas the question also refers to the other analytical approaches :

Psychical : What would it mean for a woman to have children one after another without stopping during the whole of her youth ?

Social : What would it mean for society to have its women either pregnant, in childbed, or young mothers ? What would this imply for the rôles of the man and the woman ?

Political : What does it mean to have a population with a given growth rate, and how do production, education, etc., have to be organized to deal with this problem ?

We can see that when we try to analyse events in sexual life along these different lines, the questions become complex because on each of these lines events obey certain laws, and politics and psychism, for instance, are not governed by the same ones.

To take another example : a young man and a young girl desire each other ardently.

- From the point of view of the body, they have a wonderful experience.
- From the point of view of their personal life-history this experience is the most wonderful moment in their life.

- From the point of view of their environment, they are beset by criticism and insults ; the girl will no longer be a virgin, and her parents are furious.

- From the point of view of authority, everything possible will be done to separate them.

This simple example is a caricature which attempts to show that in sexual life contradiction and conflict are the rule.

The conflict may be intrapsychic, that is within the individual, or interrelational, that is between the individual and his or her social and political environment. The question is to know what the « price to pay » will be, for each one of us, in order to solve in our own way our sexual situation which by its very essence is conflictual.

Let us illustrate this concept of « price to pay » by a few examples :

If a young girl has sexual intercourse and finds herself pregnant, in opposition to the values of the circle in which she lives, the price to pay may be :

- a clandestine abortion and its risks ;
- a pregnancy accepted in her circle ;
- exclusion from the school and professional system.

Furthermore, children whose upbringing in the very early years of their life was very repressive from the point of view of emotional development may have to pay the price of a certain number of sexual symptoms which may go as far as impotence or frigidity.

Freud said of men : « repression often goes too far, and this causes the unintended result that the sexual instinct, once liberated, appears to be permanently damaged. For this reason, complete abstinence in his youth is often, for a man, not the best preparation for marriage ». And he said of women : « as a result of this artificial postponement of the act of love, young girls have nothing but disappointments to give to men ; their feelings make them still dependent on their parents whose authority was the cause of their sexual repression, and they show themselves physically frigid, which prevents a man from having any real sexual pleasure ».

The « price to pay » for conflicts caused by sexual life is often very high, as it may vary between neuroses and social exclusion.

There can thus be no teaching of sexual life as such. We can never say of sexual life, this is it ! Now learn ! On the contrary, sexual life is for each one of us a kind of compromise which we work out on the basis of our own life-story, our instincts, and our social environment.

It is therefore impossible to establish complete scientific knowledge on sexuality on the basis of which a model of sexual behaviour might be defined which would be satisfactory behaviour.

What happened in the past, and is still happening today, is that the life of young people is organized on the basis of an imaginary view of man which is built up quite apart from man himself, either on religious presuppositions or on political programmes. There is a Judeo-Christian moral ideology just as there is a moral ideology of the kibbutz in Israel or the people's commune in China. These ideological visions give priority to a programme rather than to human beings, and require every individual to achieve it on pain of exclusion.

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If we attempt - is it possible - to construct sex education on the basis of the subject, on the basis of the contradictions between his instincts and the social organization in which he lives, we may be sure that everyone will have to make an effort to mature. Whether it is possible to turn into this healthy, ideal, mature man will depend on a person's ability to identify with society, by accepting it or changing it, without giving up too much of one's spontaneous impulses. We may add that complete maturity of an individual is not possible in an immature and socially sick environment.

In this view of sexual life as a compromise to be found between the instinctive requirements of the subject and the requirements of the social environment, we see that collective sex education may be the establishment of « places to talk », where contradictions and conflicts may be expressed in trustful exchange, so that young people may get used to living with them, and through these meetings may learn the laws of true human relations.

4 - *Conditions for health education* -

What do children or young people need ? They need three things :

- to have before them people they can trust, true adults, who live what they teach and are capable of becoming their friends ;
- to be given teaching in biology which describes the origin of life, growth, reproduction, and the relationships of living organisms with their environment ;
- to be in a reliable emotional environment within which they will be able to discover their sexual personality in their own way, and to find out how it changes, enriches, complicates and establishes human relations.

4.1. - *Adult-child relationships* -

Sex education takes place through words exchanged, but above all by the way one lives under a child's eyes, everyday attitudes, laughing, embarrassment, feelings, and repressed behaviour. This is why it is so important for children to be with educators who are uncomplicated and true to life.

Adults, whether parents or educators, often tend to give a pure and immaculate image of themselves which for a child obscures the truth about their real physical and mental experience. This means that to some extent they are living a lie, and at the same time demand unbounded confidence.

Yet upbringing should give children an opportunity of identifying with adult images offered as models ; true adults, but whose aim is not to take advantage of their status as educator to impose as indisputable and the sole truth their ideological prejudices, whatever they may be, whether repressive or permissive. The rôle of an adult is to help a child to formulate his request in his own terms and to find the elements of his own reply.

The centre of educational action is not the adult, but the young people who are there with their very real sexual life, their knowledge, their beliefs, their desires, their fears and their fantasies. The adult is there to give support to those who are seeking a solution to their problem, and to give them self-confidence in their questioning.

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4.2. - Information -

Part of the educational action is of course concerned with information about the body and its sexual functions. According to age, there are differences of quality and of intensity in the questions. The reply will not be organized in the same way for very young children and for adolescents.

It seems to us that during early childhood the important thing is to deal with questions as and when they are asked, and to answer them at the level on which they are asked. Young children are usually curious about where babies come from, and to know this is to know where one comes from too. This is a personal problem, and children look for a personal reply.

As puberty approaches, it seems necessary to explain in more detail what is going to happen to the body and the instincts. It is good for a child to know about the changes in his body which he is going to experience, and the sexual attractions which he is going to feel.

As far as adolescents are concerned, speeches by adults are of little use. It seems more appropriate to ensure that someone who cares is there, and that young people realize that the educator is not there as a judge or a guardian of the law, but to be with them as they step out into life.

4.3. - The environment -

This is the atmosphere to be created in the group listening, attentively to the questions asked and to the collective search for answers.

It implies a small group of participants, comparatively homogeneous, mixed or not as the case may be. More especially it implies that the educator tries to place the questions asked in the setting of the young people who are there.

- Where does the question come from ?
- From which of the subject's positions ?
- How can the child be helped to become aware of latent demands underlying manifest questions ?

I shall take an example which is familiar to those who have given talks in class. Very often the first questions from the young people are concerned with abnormalities, and a question frequently asked is : « What is penis captivus ? ». You may be sure that the question is less concerned with the neuro-muscular explanation of the capture itself than with the boy's basic fear of being caught in a woman opening like a trap and shutting on him, showing everyone that he is trapped.

From which of the subject's positions does the question come, and from which position in his age-group may the questions come ? The point is to lead young people to get together and themselves seek for information, analyse their questions, and formulate their replies in their own terms.

Sex education for young people consists of creating a « place to talk » where the adult respects and loves each of the children for themselves, so that they too may respect and love.

Conclusion

Shall we have less accidental pregnancies ?

Yes, if at the same time as developing thinking on conditions for meeting a partner, we allow adults to encounter each other without death thrown in at the end.

Shall we have less venereal diseases ?

Yes, if at the same time as providing scientific information on the signs of the disease we organize clinic sessions to which, without being judged, young people and adults can come for treatment.

Shall we have less prostitution ?

Yes, if at the same time as reflecting on the causes and mechanisms of prostitution, we organize for girls and women better opportunities for their economic future and their social status.

Shall we have more harmonious sexual intercourse ?

Yes, if at the same time as providing information on the structure of the body and the instincts which move us, we develop in society human relationships in which domination is no longer the rule, and in which thoughtfulness for others becomes a recognized value.

Yes, if knowledge is extended to the whole field of sexual life, instead of being reduced to brief lessons on anatomy and physiology.

Yes, if our social organization becomes a little more responsible, taking into account the needs and true aspirations of its members.

SEX EDUCATION

J. DIERKENS[*]

1 - *Why ?* -

1.1. - *Basic psychological reasons* -

a/ In human beings hereditary programmed behaviour is not sufficiently clear and compelling to ensure that children and adults will always find, spontaneously and unguided, an adequate attitude towards their impulses. This is true for sexual attitudes and behaviour, and obviously also for the development of concepts and judgments linked with sexuality.

b/ The influence of the outside environment (family, culture, schooling, etc.) is of primary importance in forming the personality.

c/ This dominance of social initiation over hereditary instinctual orientation is probably due to two elements : the development of the cerebral hemispheres, and areas of association.

The «prematurity» of the newborn child (as compared with the stage of development reached at birth in the great majority of mammals) makes him entirely dependent on his family circle, and thus all the more sensitive to the influence of his parents and later on of their substitutes.

1.2. - *Present-day psychological reasons* -

There is no doubt that our Judeo-Christian cultural environment, through its history over the centuries and the millenia, has created an atmosphere which is unfavourable to the development of sexual maturity by its unnecessary constraints, contempt of the body, and in the past few years perverted liberation with the help of pornographic articles and media.

1.3. - *Consequences* -

Sex education always has two aspects :

- curative, with the aim of correcting cultural errors ;
- preventive, in order to promote sexual and human completeness.

Love, feelings, human relationships, altruism, and the other aims of life are so closely linked with sexuality that it is almost impossible to be balanced and mature if one's sexual behaviour is disturbed or anxious.

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2 - *Who should provide health education ?* -

a/ Someone whom the recipient trusts ...

b/ ... and who is able to discuss sex without anxiety or a feeling of guilt, and without bringing in his or her personal problems.

c/ For children more than for adults, the educator should be one who can serve as a model of identification.

The parents should be responsible for this education, the school or the physician acting as auxiliaries. The school is concerned directly with the child as a member of a group, whereas the physician is usually more concerned with the parents, in order to help them to be in a position to talk to their children.

3 - *When ?* -

There are some things - such as the correction of errors - which always have to be taught unflaggingly, but at the same time it is important to try and find the underlying reasons for this ignorance.

Sex education in adults is always «curative», since it is abnormal in the present-day world for adults not to have been able to find out for themselves what they need to know. The physician must first of all help the patient to get over feelings of guilt or anxiety, and it is only when this is done that information has a chance of being taken in.

Children, on the other hand, are not necessarily anxious when they realize that they lack knowledge. For them, sex education is usually «preventive» - helping them to make their sexual and emotional choices. To make inopportune references to guilt feelings which have to be got rid of may easily lead to unnecessary anxiety.

The physician's first task is to educate the parents so that they are in a position to take charge of their children's education. It is a mistake to expect a physician or a «technician» (psychologist, marriage counsellor, etc.) systematically to take the initiative for sex education :

a/ this places sex on a technical plane (a biological instinct, the functioning of an organ, techniques of inter-personal relationships) rather than on the plane of feelings and love ;

b/ to bring strangers into a matter which is as intimate and basic as sex is to turn it into a «psychological problem» ;

c/ by asking the physician to intervene, sex is linked with associations connected with the person of the physician which are usually unpleasant, such as sickness, pain, injections, etc.

4 - *How should sex be discussed ?* -

4.1. - Guilt and anxiety should never be used to «correct» any form of «psychological» behaviour, because :

a/ such behaviour will in any case continue - possibly in the form of dreams or fantasies rather than real-life events, but favouring the permanent establishment of undesirable behavioural patterns ;

b/ in addition to the element considered as pathological, distress will enter in and will increase its pathological character ;

c/ since sexuality in children consists of groping, of many and changing aspects, of ignorance and clumsy searching for knowledge, «perversion» in children is quite normal ;

d/ if a child settles compulsively into behaviour considered as pathological (such as constant masturbation, or morbid curiosity and voyeurism), it is essential to look for the cause of this fixation, and not forbid it or punish it, which will only have the effect of making the fixation yet stronger and more pathological.

4.2. - Positive models should be given so that sexual «problems» do not need to arise :

a/ sexuality should not be isolated from emotional life, nor be given so much emphasis that the emotions are seen entirely in terms of sexuality.

Examples of mistakes :

- Censorship in lessons - e.g. English, biology, history - while at the same time providing a course in sex education ;
- Never to speak of love or sex in the family circle, but to ask a «technician» to discuss it on a special occasion ;
- Discussion of sex solely as techniques and biological information in a lecture or a book in which only passing mention is made of love, feelings, and social responsibility ;
- Arousing a child's curiosity unduly by bringing references to sex into any and every conversation ;
- Dressing up young children in caricatures of sexualized clothes (or even make-up), etc.

b/ Sexuality should be presented in a responsible and balanced way.

Examples of mistakes :

- Giving emphasis to perverted behaviour (homosexuality, voyeurism, sadism, etc.) as though it were a model of balanced or normal behaviour (care must be taken, however, not to go to the opposite extreme and make neurotic attitudes appear guilty, or attack behaviour which is not aggressive but simply warped and perverted) ;
- Representing the refusal of any kind of frustration as normal and a sign of strength (advertisements of course encourage inability to tolerate any delay in obtaining something one wants or to put effort and perseverance into any activity that one undertakes). It is often said of immature people whose sex life is unbridled, indiscriminate and impulsive that they «have no complexes». And yet their behaviour is pathological, because their sexual desires remain infantile and their inability to control conditions of satisfaction or submit them to human requirements (respect for others) only confirms them in their neurotic structure ;
- Depicting masculine or feminine characteristics so vaguely or so ambiguously that young children are given no identification guides to help them mature harmoniously.

4.3. - One should put oneself at the child's level, and at the same time lead the child to a higher level of knowledge, vocabulary, and emotional life, in order to guide him towards maturity.

This in fact is valid during any educational process. To remain in the child's world and keep him there by satisfying him, or to take off into an imaginary world and break off all communication, are two mistakes to be avoided.

4.4. - To receive information on sexual matters may cause a very strong emotional reaction.

a/ As an extreme example, discussion of sexual problems has an unconscious impact on some people which resembles an actual sexual relationship. Thus a physician who often uses terms with «taboo» value for the patients may create an emotional «link» which is so strong that sexual curiosity turns into untimely sexual desire, often experienced with a sense of guilt.

b/ When people around them talk theoretically of sexuality, children will find that the romance has been taken out of love, that it is being shunned and destroyed. Any form of «lecture» affects future experience, directs it, and may sometimes block it or dry it up.

4.5. - Sex education should never be used as an occasion for :

a/ satisfying one's own perverted sexual tendencies ;

b/ political contestation or approval of society, using children as «pawns» without taking into account their sensitivity or their psychology. Dissatisfied teachers sometimes unleash passions in their pupils all the more violently and unrealistically because they put emphasis on conversations aimed at sexual liberation (Oedipean desire is permanently present in adolescents) : - psychologists, by guided sex education (absolute and uncontrolled liberty, or submissive conformism to suit their own ends), try to justify their own social and political allegiances at the expense of young people.

4.6. - Sex education is only one part of emotional education as a whole, which encompasses sexuality while going far beyond it.

a/ education of the body must take place both in the refinement and pleasure of sensual perceptions and in freedom and ease of movement ;

b/ development of the personality must integrate all its tendencies and guide them towards the chosen aim ;

c/ social responsibility and ethics must go together with attitudes and remarks on human relationships ;

d/ an aesthetic sense (in language, gestures, poetry, etc.) must always add a pleasurable dimension to one's way of acting.

It is only by starting from general development along these lines that the particular aspects of sexuality and sexual behaviour can be integrated smoothly and coherently.

5 - *What should be said ?* -

5.1. - *Preliminary remarks* -

a/ A human dimension should always be added to notions of physiology in order to ensure each time that human value is given to sexual experience.

b/ Never tell a lie. The family must never be allowed to falsify the truth, even if later on they ask you to give exact information.

c/ Do not leave children in ignorance about sexual questions about the other sex that they may have on their mind. Talk to both boys and girls about menstruation, conception, pregnancy and childbirth, and about erection and sperm.

d/ If as a doctor you are asked to give a lecture in a school, you should :

- begin by setting the problem of sexuality on the plane of harmonious human development in general, both of oneself and of inter-personal relationships and how they enrich people ;
- give technical information for which your assistance has been requested (competence and social authority) ;
- wait fot the young people to put questions to you, and reply without ever a shade of mockery or a disdainful or ironical smile, what is most important in such a dialogue is to gain their confidence rather than be concerned with the amount of information imparted. Ideally you should have a discussion with the teachers beforehand, to find out in what educational atmosphere you will have to speak, and why it is that these information sessions are not being given by one of the school staff themselves. To give valid sex education to young people living in an unhealthy boarding-school is unlikely to serve much of a useful purpose ...

e/ When parents ask for the help of the physician, his chief aim must be to make them capable and desirous of talking to their children themselves. He should therefore give them the terms (technical and everyday), the notions (general and specific), and eventually a bibliography (family planning library, continuously updated).(1) Verbal communication is richer and more vivid, but is often too much for anxious parents to take in ; they prefer to be able to go over the notions again later in a book rather than ask further questions.

It is often a good thing, in addition to what has been said, to give a book to a child : it is there to be consulted ; it can be looked at at leisure (diagrams, pictures, explanations) ; it should be capable of making the child think by stimulating personal reflexions which help in his development ; it is a permanent sign of the parents' support and an opening for the necessary dialogue. A book, however, can never be a delegation of authority.

f/ Anatomical diagrams, which are so often used by physicians, are frequently the cause of disturbances and confusion rather than clarity. People are not used to « sagittal » or « frontal cross-sections », etc., or to highly technical terms, and so find it all beyond them, do not understand, and therefore have a mental block or become anxious ; sex education given with the best intentions and in the right context then has a negative effect.

5.2. - Notions to be remembered -

- Differences between the sexes : from the beginning of kindergarten school - following children's models and not simply the visions of adults - without preeminence of one sex over the other : there are differences, but not superiority in one and castration in the other.

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(1) A. de KEYZER and S. GORIELY : Education affective et sexuelle. Bibliographie critique no 1. Ministry of National Education, 1977.

- Pregnancy : keep the womb separate from the other abdominal activities - childbirth with very little pain and no mention of blood (for a child, blood is equivalent to an aggressive and brutal act) - guidance towards birth without violence(1).

- Rôle of the father : from the beginning of kindergarten school - uniting of the seeds (and not «plantation» of the masculine seed in the feminine «earth») ; erection and penetration of the vagina seen as loving care (putting the seeds as close as possible to one another).

- Menstruation - erection - contraception : before puberty : information must precede experience - it must not be deformed or complicated - it is given in the instinctual calm of the latence period.

- Enjoyment : the joy of giving, the rapture of exchanging love, choosing one another, and giving oneself completely.

- Masturbation : short-circuit between desire and satisfaction, stereotyping of fantasies and childish and unrealistic structures, «fixation» of rôles and fantasies; difficulty of integrating with the other through frequency of fantasies, withdrawal and satisfaction during personal contacts but no «danger».

- Sexual relations : not «techniques for enjoyment», but total freedom in bodily movement ; dialogue and exchange ; responsibility (towards one's partner, society, contraception and conception), not with the aim of withdrawing, but of achieving maturity and finding completeness. An interval between desire and sexual relationships must be accepted but not sought for masochistically ; this interval is necessary in order to mature feeling.

The reader might like to consult also other publications of J. Dierkens, particularly :

- L'éducation sexuelle à l'école (Sex education in schools) ; in *Cahiers pédagogiques*, 1966, no.59 : 79-85.
- Le rôle de la famille dans l'éducation sexuelle (The rôle of the family in sex education) ; in *La Pensée et les Hommes*, 1965, *9* : 4-12.
- L'amour à 18 ans (Love at eighteen). Paris, Editions Universitaires, 1970 (out of print).

Summary

1. It is essential to understand - and pass on this understanding - that sexuality is only one element in the creation of basic human values, but that this element of sex is important. It is easier to be happy when there is both coherence in one's values and satisfaction in one's impulses. To be able to maintain balanced inter personal relationships, it is essential to have resolved one's emotional conflicts - and consequently one's sexual problems. Detachment from one's impulses (lack of interest in food, or lack

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(1) LE BOYER, F. : Birth without violence. Wildwood House, London, 1975 or Knopf, New York, 1975 (in which the photographs are reassuring for a child and constructive).

of interest in sexual pleasure) must not be completely rejected, but it cannot be harmonious in distress, nor in isolation. nor in exacerbation of fantasies, nor in aggressive asceticism.

2. It is a mistake to think - especially in the social and cultural seeting in which we live - that sexuality develops harmoniously without educational guidance.

3. When, as a physician, you are called upon to undertake sex education, make sure first of all that you understand the needs and problems of those you are dealing with, and only then should you give them whatever information is required, always bearing in mind its value in giving balance and maturity.

4. Through ignoring these principles, sex education in our society has become equivalent to an unleashing of sex, a compulsive and thoughtless liberation which is coarse and causes almost.as many neuroses as absence of sex education. It is for physicians, among others and above all, to give guidance to this sex education so that it brings enrichment to pleasure, health and experience, instead of being a source of disturbances which in their turn can only bring about destructive reactionary repression.

THE LIFE OF THE COUPLE - FAMILY PLANNING - MARRIAGE COUNSELLING*

S. DURET-COSYNS**

Union of the sexes characterizes life in the adult. Sexuality is not limited simply to the functioning of sex. It is not a purely physical and carnal mechanism, but a natural function which is part of the need for love. Three aspects of sexuality are often distinguished : pleasure, love, and procreation. But it becomes increasingly difficult to make this distinction the further away one goes from transitory physical union towards the most highly developed love relationship.

As the individual develops, emotional maturation and sexual maturation develop along parallel lines, and only meet once maturity of the mind has been reached. Only then does love become possible with the coexistence of sexual desire and specific affective attraction.

For this reason it is rare for adolescents to experience global love ; most of the time they dissociate the physical relationship from the affective component. A boy may have a sexual relationship without feeling much tenderness for his partner, and at the same time have a platonic emotional relationship with a girl whom he idealizes. A girl may often experience several platonic love relationships with boys before settling into a mature physical and mental relationship.

1 - *The life of the couple* -

1.1. - *Establishment of the bond of love* is based on unconscious affinities and on a conscious sexual desire.

The choice of the object of desire thus corresponds first of all to the dynamics of the unconscious. Usually, however, the subject believes he or she is making a free choice, especially if the establishment of reciprocal bonds of love lasts for a certain length of time, and if spontaneous attraction takes place at the same time as approval by the conscience.

« Love at first sight », on the other hand, would seem in some ways to be more revealing of the existence of such unconscious affinities. It puts the conscience of the individual before the accomplished fact of the feeling of love. Finally, it may be mentioned in passing that the absence of a love fixation, of which some Don Juans boast as a free choice in their way of life, is always a reflection of deep neurotic tendencies in which the unconscious mechanisms of over-compensation of a feeling of inferiority or of latent homosexuality are familiar to psychoanalysts.

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* Extract from « Introduction à la reproduction humaine » (Professor P.O. Hubinont), 3rd candidature. Free University of Brussels, Belgium

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To return to the formation of the couple, the existence of unconscious demands at the time the love bond is formed enables us to understand that it is practically impossible at that moment to evaluate the later stability of the union.

1.2. - The phase which follows establishment of the love bond, and which may be termed the *phase of psycho-sexual adjustment*, is characterized by an emotional withdrawal from the world around one to the exclusive benefit of the partner (« lovers are the only people in the world »).

The « honeymoon » corresponds to an idealization of the life of two people together. It is a very important period both on the sexual plane and on that of verbal communication. It is either the beginning of complete sexual relations, or else the deepening of previous genital communication which takes on a sense of true personal involvement, unlike previous relationships which were sometimes taken as meaningless play.

It is important to note that this is a period when difficulties may sometimes arise on the sexual plane, most of which are unimportant and connected with anxiety, shyness or clumsiness in the partners, or sometimes with a feeling of guilt stemming from too strict an upbringing. Impotence or frigidity usually disappear spontaneously within a few weeks or months, or following reassuring and instructive advice from a general practitioner, gynaecologist, or marriage counsellor. If sexual disorders still persist, they are caused by more complex psychological mechanisms which will be discussed later.

On the plane of communication, it is noteworthy that this phase is especially favourable to intellectual and affective verbal communication. In a way it is the period when the foundations of the couple's edifice are being laid. The deeper and more solid they are, the better chance the couple will have of surviving in its next phase.

1.3. - *A third phase* may indeed be distinguished, that *of renewed interest in the outside world*. The honeymoon is over, the young married couple come down to earth again, they are beset by the difficulties of everyday life, and once more begin taking an interest in the outside world. This calls for further adjustment by the couple.

Certain hymenologists have termed this the crisis of the couple, in the sense of a decisive and sometimes perilous time. This is when the partners lose their original idealization, and no longer see each other as ideal beings but as real persons with all their faults and qualities. Aggressivity between the two, which had been non-existent during the previous phase because it had been violently repressed, reappears, and the future of the couple's life together will depend on the balance between the forces of attraction and the forces of aggressivity.

1.4. - Finally, the *appearance of a child* in the couple's life, who satisfies the conscious needs for procreation of one or both partners, is to some extent revealing of the solidity of their life together. Clinical experience shows that the birth of a child may strengthen existing bonds, or may on the other hand bring out the differences that an understanding which may have been sexual or affective, but in any case immature, had so far camouflaged.

In the woman, certain depressions and impulsive phobia of the post-partum period are sometimes an expression of her disquiet because her involvement in the shared life of the couple is less easily reversible than before. The woman who had sincerely wanted to have a child may find herself beset by depressive ideas or the fear of killing her child if she thinks of it as a more indissoluble link than before with the man towards whom she had previously felt ambivalent. Depression or character disorders may sometimes appear in the man after the birth of a child, with whom he is regretfully obliged to share the affection of his wife, having unknowingly chosen her as a mother-substitute rather than a companion.

It may happen that psychological problems connected with the birth of a child express themselves as frigidity in the woman or impotence in the man. It will be the task of the medical practitioner to understand their aetiology. The birth of a child will obviously be a greater threat to the balance of the couple's life if it was not wanted. This leads us naturally to discuss the usefulness of family planning.

2 - *Family planning* -

Although this question is discussed elsewhere in these pages, we shall nevertheless go over some of the aspects of contraception.

Gynaecologists, hymenologists, and sexologists seem to be agreed that family planning has a certain number of advantages. In so-called developed countries the advantages of regulating births would seem to be less vital from the overall point of view than in the developing countries, but not less important for the happiness of the individual. In this way, particularly, induced abortion in married or unmarried women can be controlled. Induced abortion may endanger a woman's physical health, but it may also affect her mental health by leading directly to depressive tendencies tinged with guilt that may sometimes be very tenacious.

Knowledge of contraceptive measures may avert illegitimate births, premarital pregnancies, and forced marriages. It seems possible to avoid the fear of pregnancy and its harmful consequences to the sexual harmony of the couple through the use of suitable contraceptives.

Finally, it is a well-known fact that a child who is wanted, and is born at the optimal moment chosen by its parents has a better chance of developing harmoniously and of being a source of joy to the parents than the child who is born « by accident ». The importance of harmony between the parents in forming the child's personality is indeed well known : children cannot develop harmoniously with parents who are dissociated, who cannot give them security, or who did not want them.

Family planning is thus important for the physical, mental and moral health, not only of the woman but of the whole family. Stimulated by physicians and sociologists, a large number of family planning centres have been established to help couples choose the method of contraception which meets their need. Theoretically it might seem that the various methods of contraception could be prescribed by gynaecologists in the same way as any other preventive treatment. In fact, however, experience has shown that the couple must be responsible for choosing a method of contraception in accordance with their moral code, their taboos, and their cultural, religious or individual objections of a psycho-affective nature.

In this field, which is closely linked with the couple's private life, the emotional attitude of the physician to these problems is more important than the technical aspect. Thus in many countries it has been found useful to give gynaecologists training in psychology. This training may be considered particularly within the framework of Balint groups (cf. the book by that author : «The Doctor, his Patient and the Illness», Pitman Medical Publ. Co., London and International Universities Press, New York, 1957). Sometimes, however, the hesitation and the unforeseeable and surprising mental attitudes of certain couples, faced with contraception which they say they want, goes beyond the competence of gynaecologists, even if they have been trained in sexual psychology.

In such cases, behind the request by the individual or the couple for contraception is hidden a further problem of sexual, marital or family adjustment in which social or legal problems which call for the intervention of a marriage counsellor or even a psychiatrist are sometimes involved. As a result, in a good many family planning centres the teams which originally consisted of gynaecologists, a nurse and a receptionist, has had added to it medical psychiatrists, psychologists, marriage counsellors, as well as a legal adviser and a social worker. They are very often also responsible for :

- series of lectures preparatory to marriage, where engaged couples and young married couples have the opportunity of taking part in group discussions on all the problems of their future life together ;
- informatory talks on all problems related to the life of the couple, intended either for the public, for adolescents in schools, or for youth groups ;
- finally, as complete a library as possible containing volumes concerning the psycho-sexual life of children, adolescents, and adults.

Consequently it can be stated that family planning is not merely a matter of birth limitation or spacing. We have shown that nowadays it is dealt with on a higher plane and concerns the harmony of the couple, the balance of the family, and - most important in our view - the conditions required for children to develop all their potential in the heart of the family.

3 - *Sexual disorders in the couple -*

Let us briefly review the most common sexual difficulties. It is important to note first of all that it is extremely rare for these difficulties to have an organic origin. Only very rare anatomical malformations or certain nervous or metabolic diseases may cause sexual incapacity, but in 95 per cent of cases psychological factors are responsible.

The first difficulties we have mentioned are those that may be encountered by young adults who are clumsy, shy, inhibited, and anxious to achieve physical union. Their difficulties often disappear spontaneously after a few weeks of living together, or as a result of practical advice from the family doctor or a marriage counsellor. In some cases the difficulties are slightly less serious. Intercourse is possible, but the young woman does not achieve an orgasm with her partner. Here again, if the couple is otherwise harmonious, it is likely that this will right itself. Some women indeed only achieve sexual maturity little by little.

More important are the numerous disorders which may be termed impotence in men and frigidity in women. To begin with a definition of these disorders, let us term male impotence any symptom which prevents normal sexual intercourse, at whatever stage in sexual activity the disorder becomes apparent. It includes abnormalities of sexual desire, erection, ejaculation, and orgasm. Frigidity is defined as any form of unsatisfied sexual relationship. It also includes abnormalities in sexual desire, inability to bear penetration, or simply the inability to achieve an orgasm.

Impotence and frigidity are always caused by a mental inhibition. This may sometimes be conscious, in the form of fear of sex life. Such fears may be thought to be connected with a fear of pregnancy, but in this case the inhibition should be overcome by using an adequate method of contraception. However, this is generally not so, and experience shows that the women who are the most hesitant about sexuality are also the most hesitant about contraceptive methods. This usually shows that fear of pregnancy was only an alleged obstacle to a normal sex life, and in such cases other factors must be looked for.

In most cases, inhibitions are unconscious and complex. They are linked with elements of fear, guilt, or aggressivity which have their origin in the psycho-sexual development of the individual. A careful biographical study of the case will almost always make it possible to link the origins of such difficulties with important affective deficiencies in childhood, identification with a neurotic parental image, disturbances in the parental couple, or sometimes - but more rarely - present psychological problems in the couple. To illustrate these concepts, we shall cite briefly some examples of sexual disorders:

a) A classical case, almost a caricature, is that of the young woman who has remained exaggeratedly attached to her father, and can only be interested in a man twenty or thirty years her senior. With this father-substitute she is frequently frigid because of the banned connexion with incest.

b) A man who has remained abnormally attached to his mother, seeking unconsciously a mother-son type of relationship in his love relationship, may also be impotent with any woman who responds to his emotional needs, and more particularly with his wife, because of the banned connexion with incest. In this specific situation of exaggerated and infantile attachment to the mother, later psycho-sexual development may well become more or less pathological. The following degrees of increasingly pathological development may be observed :

- sexual understanding between the partners is satisfactory, but the emotional relationship is of the mother-son type ;
- the emotional relationship between the partners is of the same type and is satisfactory, but from the sexual point of view we are faced with impotence towards the object, that is to say towards any woman with whom emotional links are established ; sexual intercourse is only possible when these are not present, for example with professional prostitutes ;
- sexual impotence is complete ;
- psycho-sexual orientation is directed towards homosexuality.

c) Another example is the daughter of a mother who is dissatisfied and aggressive towards men ; she may unconsciously be led to reproduce her mother's behaviour, and will not achieve harmonious development either.

d) Finally, a problem between the partners sometimes appears to be at the root of sexual difficulties. This is the impression that may be given by a woman patient who complains that her husband is a drunkard, brutal, unfaithful, professionally unstable, and so on. It is tempting to lay the blame for the couple's failure on the patient's husband, but on looking a little more closely it will be found that this young woman spent her childhood and youth with parents who did not get on together, that her father was a drunkard, brutal and unfaithful, and that to escape from this unbearable environment she married the first man who came her way and who «happened» to be a difficult character exactly like her psychopathic father. Thus, even in this case, behind what seems to be a present conflict are hidden unconscious tendencies which have shown themselves in the choice of the object.

This brings us to some remarks on the approach to these problems in current medical practice.

The first important point seems to be to try and understand the past and present context of the disorder that is presented. This does not mean that the physician, having understood for instance that the choice of a partner is a neurotic one (as it obviously is in the cases we have cited, particularly the last), can usefully give these explanations to the patient. But after this preliminary psychological investigation, he will be able to discern whether he can help his patient by reassuring him because it is a mild anxiety state in an inexperienced young man, or whether he should send him to a psychiatrist because he has been able to discover disorders of psycho-sexual development which require specialized psychotherapy.

The second important point is that the physician must always avoid taking sides, in the advice he gives or the attitude he adopts, with one or the other member of the couple, even if the patient complains of his or her partner. The situation is never a simple one, and responsibility for a problem between members of a couple - if there is responsibility - is always shared. It is even more important to avoid advising a woman or a man to take a lover or a mistress, or to leave his or her partner. Such an attitude has no place in the art of healing, and furthermore a person who has made an unfortunate choice of partner the first time is very likely to continue to make equally unfortunate choices the second and third times as a result of the unconscious demands mentioned earlier in this chapter. The physician thus faces an extremely delicate task in dealing with the problems of such patients.

The maxim « primum non nocere » is particularly appropriate in such cases, and the rôle of the general practitioner very often consists essentially of directing them to a marriage counsellor or a medical specialist who not only has theoretical training in this field but above all has had emotional group training ; for if it is true that in any physician-patient relationship the physicians runs the risk of using his unconscious emotional equipment in his therapeutic relationship with the patient, this is particularly true, and particularly delicate, when dealing with sexuality.

CHAPTER X

INTEGRATION AND EVALUATION OF FAMILY PLANNING

INTEGRATION OF FAMILY PLANNING ACTIVITIES IN BASIC HEALTH SERVICES WITH PARTICULAR REFERENCE TO MATERNAL AND CHILD HEALTH

M. MANCIAUX

Several years ago the Executive Board of the World Health Organization drew attention to the discontent of many populations of the world vis-à-vis their health services, which they accused of being difficult of access, too few in number, too slow in increasing, and above all of following their own bent without seriously considering the priority health needs of those for whom they are responsible. Even if this critical analysis does not apply equally to all countries and all situations, it has at least the merit of forcing health personnel to reflect on their rôle in relation to the community they serve, which may too often be forgotten in the temptation of « professionalism ».

This serious criticism led to very important re-thinking and reorientation in WHO, both in the Secretariat and in several of its Member States, and it was thus that the concepts of « basic health services » and more recently « primary health care »(1) came into being.

Basic health services are units - health centres, health posts, or dispensaries - established at points of contact with the population and thus very much at the peripheral level ; they are first-level services for both prevention and care which must be capable of providing on the spot simple health measures and of referring to a better equipped level those patients who cannot be dealt with locally.

Primary health care in fact consists of those simple measures that the basic health services are responsible for providing. The activities involved obviously do not call for either specialized personnel, particular technical skills, or complex equipment. They are inexpensive or even free of charge, and they must be easily available and accessible. Primary health care, however, though it is simple to some extent, has priority and is of utmost importance. It has priority because it must respond to all the essential health needs of the community, and these are determined with its help. And it is of the utmost importance because it is intrinsically capable of providing tremendous improvement in the health of the individuals who make up the community.

Family planning activities are included in primary health care, and are among the tasks of the basic health services. This statement is now a well-known fact to health planners, but is nevertheless worth going into in more detail.

1 - First of all, let us consider briefly the *demographic and health situation* of many countries of the developing world. Women of child-bearing age, children and young people

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(1) «Care » is here understood as covering activities in prevention, treatment, rehabilitation, and health education.

represent between two-thirds and three-quarters of the population. Maternal mortality, and infant and child mortality from birth to the age of four years, are still very high, and high morbidity also reduces life expectancy considerably. Health services and personnel are concentrated in the heart of the big towns and the population living in suburban or rural areas cannot reach them ; very often the only activities organized at the periphery are maternal and child health services. It is clear that one of the absolute priorities for these populations is spacing of births together with a decrease in maternal, infants and children's deaths, and that the existing services, by simply strengthening their organization and the technical skills of their staff, are the only ones which can meet this need efficiently, speedily, durably and economically.

In developed countries MCH activities are one of the few opportunities for continuous contact between an important section of the population - pregnant women and young children - and the public health services. Even if family planning measures are available elsewhere, MCH services still have a priority rôle to play here.

2 - These demographic and health considerations must never be lost sight of when the question is posed : « *Why should family planning be integrated with MCH services ?* ». For such integration is a commonsense solution, if it is borne in mind that these services are often the only ones that exist, or at least the only ones attended by a considerable proportion of the population. If they are not used for family planning programmes, and if a network of established services or mobile clinics is built up beside them, the result in economic terms is costly duplication if not squandering of financial resources. And yet this is what has happened in some countries, particularly in developing countries where bilateral or international technical assistance is provided for family planning activities. Experience has shown, however, that projects developed outside the existing basic services have not been effective, and more especially have not had a lasting effect. Even more serious is the situation in countries where a central, independent family planning service has been created outside the MCH section of the Ministry of Health ; this costly and illogical separation usually exists only at the highest level, and results in a situation where the same operating personnel at the field level receive conflicting instructions from ministerial services which have no communication with one another for the MCH and family planning activities which they are ordered to carry out.

The conclusion is obvious : in terms of cost/efficiency, the basic health services, and especially the MCH services, are by far the most suitable to take charge of family planning projects and integrate them into their daily activities. Rather than invest in separate programmes, the agencies which finance family planning projects should assist in strengthening these basic services and in providing in-service training for their staff in order to integrate these new activities : these services will then develop into real family health units. Furthermore, the contacts called for between the population and these services are in themselves excellent opportunities for the introduction of family planning ; but this point will be elaborated further later on.

Apart from economic considerations, which are of particular concern to planners, there is a more convincing reason for this integration : the point of view of the user. Family planning is only acceptable to the extent that parents have good reason to believe that the children they already have will survive ; and a decrease in mortality in infancy and early childhood is very closely linked to the activities of the MCH services.

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Family planning becomes credible and acceptable as a result of these activities, especially if they are offered by these same services. It is a question of confidence : both women and men will be more likely to accept family planning and its constraints if it is introduced to them by health workers in whom they have confidence and whose activities in the community are beneficial. « Midwives, nurses and their auxiliaries are in a privileged position to inform couples and help to undertake and continue planning the birth of their children. In order to do so, they must first of all be conscious of their own attitude towards family planning and accept this responsibility as being part of the whole field of maternal and child care »(1).

This does not mean that qualified MCH staff are the only ones capable of delivering this message and setting up the corresponding activities. « In some areas traditional midwives are used ; they may prove very useful, but they must be trained to send the women who put their trust in them to the clinical services. MCH staff may also work together with those in charge of other services, such as home economics, agricultural extension, and community development ».(1)

3 - How can integration be achieved ? -

« In education and motivation for family planning, several approaches are feasible : the individual approach, the group approach, and the use of newspapers, radio, etc. But in the last analysis it is through individual contact that a couple's family planning behaviour can be influenced most effectively. These opportunities for contact, during which health personnel can provide family planning information, occur very frequently in the work of the MCH services. The subject can be raised in the first place with the future married couple during premarital visits and registration of marriage. Prenatal visits, the time spent in the maternity hospital, and individual or group consultations provide further opportunities for a dialogue. Postnatal visits or examinations carried out following an abortion are also opportunities to inform the women. Experience shows that many more women attend postnatal examinations when these include an introduction to family planning. Mothers are particularly receptive to this educational activity when pregnancy and childbirth are still a recent experience and they wish to put off a further pregnancy in order to give better care to their newborn child. Well babies and child health clinics also provide an excellent means of strengthening and following up effectively family planning activities. This is especially important when mothers have neglected to attend postnatal clinics, as so often happens in developing countries. In the same way, the distribution of food supplements through nutrition rehabilitation centres offers a further chance for taking action. Home visits, whatever may be the primary reason for them, enable the public health nurse to judge whether there is a need to initiate the family in the aims and methods of family planning.»(1)

It is thus clear that each stage of maternal and child care provides not only an excellent opportunity, to integrate the educational and technical aspects of family planning, but also a perfectly natural and suitable entry-point. Furthermore, parents are more receptive and more motivated towards family planning during pregnancy, shortly after childbirth, during breast-feeding, and in the first few years of their child's life ; this corresponds precisely with the period of attendance at MCH services.

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(1) «La santé de la famille et de la communauté» (Health of the Family and the Community). *Les Classiques africains*, Paris, 1976.

At the health centre, individual or group education of the women with simple but suitable equipment is an essential prerequisite to any prescription or technical intervention.

During home visits, when all family health problems can most easily be identified, the health worker has a unique opportunity to meet those members of the family - the men and the older generation - who do not normally attend dispensaries but whose influence is nonetheless of the greatest importance ; this opportunity for discussion must not be missed, in order to explain the benefits of birth spacing for the health of mother and child, and to make allies of them. Here the technical aspects take second place, but a real educational and community approach can be achieved. And who is better equipped for this task than the public health nurse, the midwife, or the MCH auxiliary, who knows the family and enjoys its confidence ?

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There is a proverb which says : « Many little things done in many little places by many little people can change the face of the earth ». It is most applicable to the subject we are studying : measures which are simple, but at the same time numerous and frequent, very decentralized and thus accessible, and carried out by basic health workers in close touch with the population, can do much to improve the health of the world's mothers and children. One of these little things, without any doubt, is family planning, which has its place in any MCH programme worthy of the name.

SOME TECHNIQUES FOR EVALUATION OF FAMILY PLANNING PROGRAMMES

A. JOURDAIN*

1 - *Introduction* -

1.1. - *General* -

With the development of family planning programmes a new discipline has come into being : evaluation, which may be defined briefly as an attempt at objective observation in relation to the daily output of the services.

This evaluation usually has two separate objectives :

- to know what reception the programme is given by the population ;
- to provide indices on the functioning of the centres, in order to facilitate the task of the administrators.

The first objective will be dealt with in this section, and the second will be analysed in detail by D. Pierotti in the following section.

1.2. - *The reception of the programme* -

To define the reception given to a public health activity amounts to asking the following questions, with which we shall associate the relevant statistical indicators :

Questions	Associated statistical indicator
What proportion of the population of reproductive age avails itself of the programme ?	Rate of coverage of the population
What type of population attends the centres ?	Analysis of the clientèle
How regularly do clients attend ?	Continuation rate

First of all we shall discuss the method of calculating these statistical indices, and then define the system of data collection which makes this calculation possible. To begin with, it should be noted that this discussion has deliberately been limited to the elementary statistical system constituted by the files and registers of the services whose analysis is inexpensive, and that it does not therefore cover the more precise but more costly methodologies of sample surveys.

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2 - *Methods of measurement* -

How is it possible to determine the proportion of the population at the centre who use a contraceptive method, the kind of clientèle encountered, and the regularity of this clientèle in attending the services offered ?

2.1. - Coverage rate -

What proportion of the population attends the centres ?

The results of evaluation of the centres' activities usually show the total number of attendances and the number of newcomers during the year. These data are insufficient, as in this form they do not show the proportion of users, which is the only indicator that enables the reception given to the programme to be assessed.

2.1.1. *The method of « couple-year of protection » (CYP) index* *

a) Principle : the method consists of associating a certain number of couples protected during a year with the distribution of contraceptive products. This number, related to the total number of women of reproductive age, gives the proportion of couples protected by the method concerned.

b) Data used : it is thus necessary to know the total number of contraceptives distributed in the country during the year under consideration (data provided by the Ministry of Health). If this distribution is known by institution (private association, MCH services, physicians in private practice, etc.), more detailed information can be obtained.

c) Method of calculation : after subtracting wastage and stocks built up during the year, the calculation is made as follows :

The number of years of protection is equal to the number of units distributed × f. The factor f varies according to the method concerned : in this case we shall take an example from the island of Reunion to analyse the methodology.

Pill : there are on average thirteen 28-day cycles in a year. Each unit of 13 pill cycles is thus equal to one year of protection : in this case, $f = \frac{1}{13} = 0.769$.

Example : 33,490 pill cycles distributed by the private association afforded protection of 2,576 couple-years in 1976 (see tables 1 and 2).

Condom-taro-cap : it is generally considered that the quantity of condoms to be distributed monthly is 10, that is 120 per annum. In this case, $f = \frac{1}{120} = 0.0083$

Example : the 36,240 condoms distributed in 1976 afforded protection of 232 couple-years.

Intra-uterine device (IUD) : what duration of protection does each IUD insertion provide ? In a later paragraph we shall see how to calculate the indices of continuation of use of method by the technique of life tables, the average duration of use being derived from this result.

In this example, we shall therefore consider that :

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* S.M. Wishik and K.H. Chen : Couple-Years of Protection Index : a method of measuring achievement and prevalence of contraceptive protection. International Institute for the Study of Human Reproduction - Manual no 6 - Columbia University.

- each IUD distributed (counting wastage) is actually used ;
- the duration of protection provided by each IUD is 9 months on average, and thus that $f = 0.75$.

The 960 IUDs distributed provided protection of 718 couple-years in 1976.

N.B. This calculation is justified in this instance because of the low continuation rate for this method and the small variation in number of insertions carried out in the various years before and after 1976. In cases where these conditions are not fulfilled, it is necessary to use a more complex methodology described in detail in Annex 1.

Diaphragm : like the IUD, the diaphragm has an extensive life-span, usually of more than one year. It is thus necessary, in this case, to evaluate the average duration of use by the couple : this is generally estimated by the length of time 50 per cent of couples continue to use the same diaphragm. These data require a quick survey to be made among users of this method in order to estimate the preceding value.

Example : as the diaphragm is very little used in Reunion, we shall take an imaginary example : after a rapid sampling among 100 diaphragm users in a centre, it is found that 50 per cent of the couples are still using the method after a duration of 11 months. The number of couple-years protected by diaphragm is thus $f = \frac{11}{12} = 0.916$.

If 800 diaphragms were prescribed, the number of couple-years protected would be 733.

Male and female sterilization : for this method, the calculations are somewhat similar to those for IUDs, in that the number of couple-years protected depends on the number of sterilizations carried out during the year under consideration, as well as during the preceding years.

It is necessary to know the age distribution of the women (or of the partners of the men who have been sterilized) at the time of surgery. The number of couples sterilized during year T is then determined on the basis of the number of persons sterilized during the years T, T-1, T-2, etc., once women over the age of 45 have been eliminated.

Two situations generally arise :

- either sterilization is forbidden or very little practised ; in this case its effect on the index is ignored by stating that sterilizations have not been taken into account in the calculation;
- or else sterilization is authorized and practised on a large scale ; in this case, the number of couples protected can be estimated by the method set out in Annex 2.

Table 1 : Distribution of contraceptives - Reunion, 1976

	Private sector (physicians in private practice)	AROF	MCH
Pills (number of cycles)	179,910	33,490	12,300
Depoprodazone (number of doses)	5,370	5,950	2,000
IUD (units)	1,170	960	80
Taro-cap preservatives (units)	170,180	36,240	18,490

Source : D.Pierotti, A.Jourdain, P.Lecorps : Régulation des naissances à l'Ile de La Réunion. Rapport de mission ENSP.

Table 2 : **Couple-years protected - Reunion, 1976**

	Private sector	AROF	MCH	Total	%
Pill	13,839	2,576	946	17,361	73
Depoprodazone	1,343	1,487	416	3,246	14
IUD	880	718	57	1,655	7
Taro-cap preservative	1,090	232	119	1,441	6
Total	17,152	5,013	1,538	23,703	100
%	72	21	7	100	

d) Conclusion : based on the data from Reunion, we obtain a total of 23,703 years of protection in 1975 as a result of the methods offered by the programme, which corresponds to a coverage rate of 23 per cent by contraception*. The breakdown of the data also gives us two other indications of considerable interest : the protection provided by each method, and the protection provided by each institution (tables 1 and 2).

What data are needed in order to make these calculations ?

- distribution of contraceptives,
- continuation rate of use of IUD,
- estimate of wastage of contraceptives and establishment of stocks,
- number of women of reproductive age.

2.2. - *Number of active clients in the centre* -

a) Principle : By establishing a method of judicious classification, it is also possible to know, at any time, the number of clients followed up regularly by the centres.

This system is based on a classification related to the date set for the next appointment ; anyone who has «not returned at the appointed time» can thus be picked out, and it also means that the filing system has a continuously up-to-date record of the women who attend regularly.

b) How the system works : Two types of documents are used :

- individual cards containing certain basic information on the clients' socio-demographic situation ;
- files containing medical information.

If we take the following diagram representing the different phases of a visit, we have the following train of events :

First appointment : At this point a card is made out, which is filed in accordance with the date fixed. When the first visit takes place (1), the individual card is completed and the medical file is filled in, with a note of the month when the next appointment is due.

After the visit (2), the medical file is stored away with the other files of the centre in alphabetical order, and the card is filed in accordance with the date of the next appointment (3).

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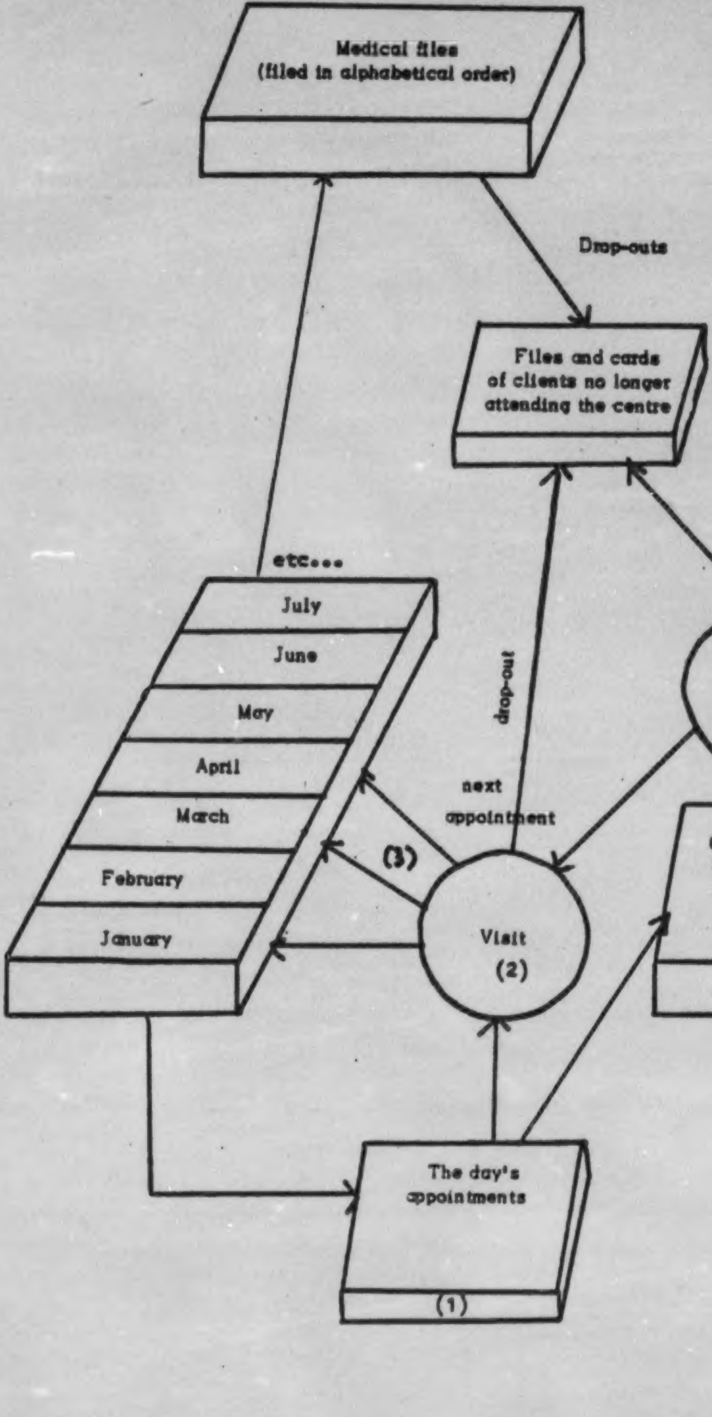
* The coverage rate may be defined thus : proportion of couples of reproductive age protected by a contraceptive method.

For each day's visits there are therefore available a certain number of cards corresponding to first appointments and to appointments made since the client's last visit.

Diagram showing the different phases of a visit



Medical files (filed in alphabetical order)
Drop-outs
Files and cards of clients no longer attending the centre
etc...
July
June
May
April
March
February
January
drop-out
new appointment given
next appointment
(3)
Visit
(2)
Cards pending (appointment not kept)
The day's appointments
(1)

Second appointment : The relevant cards in this set will be dealt with differently according to whether the patient keeps her appointment or not :

- if she comes, the file stored in alphabetical order is brought out, the visit takes place and a further appointment is made, and the card is then filed according to the date fixed ;
- if she does not come, this card is put in a file where all the cards are kept. After a certain time has elapsed, the card and the medical file are taken out of the active files and put into a section for « drop-outs ».

In this way the card-index is always up-to-date, that is, it contains the group of women still using the services of the centre.

There is an alternative to this system which consists of taking out of the card-index each month the cards of all women who have not returned within the appointed time (three months after the date set, for instance) and keeping them for a year in a « pending » file.

Conclusions. This method is useful for a given centre ; it makes it possible to know how many clients are followed up regularly in cases where no estimate of this can be made.

Example : a comparison between the results given by the « active clients » and the « couple-years of protection » methods gave similar results in the case of Reunion, as shown in Table 3.

Table 3 :

	Couple-years protected in 1976	Active clients 1st trimester of 1976
Pill	2,576	2,929
Depoprodazone	1,487	1,630
IUD	718	743
Other methods	232	139
Total :	5,013	5,441

2.2. - *Analysis of clientèle* -

In this section we shall answer the question : « What kind of clients visit the centre ? », in order to complete the data provided by the rate of coverage of the population. It is not enough to know that x or y per cent of the population of reproductive age visits the centres if the type of population concerned cannot be ascertained. For instance, is it the most underprivileged group, the youngest, or the one with the most children - the group that family planning programmes usually try to reach ?

For this analysis we shall first of all take up the problem of the headings suitable for providing the necessary information on this subject in a file, and shall then suggest some elementary statistical methods for making the study.

2.2.1. The headings needed. To know the origin of the clientèle implies the existence of a few basic questions in the file. In order not to overload the file only a few questions seem necessary, as any additional information may be considered as marginal :

a) Socio-demographic characteristics

- Age or year of birth
- Social environment
- Number of children
- Marital status

b) Attitudes - contraceptive antecedents

- Previous methods already used
- Husband's attitude
- Wish for more children ?

c) Recruitment

- By whom sent
- How she knew about the centre.

These basic indications can be supplemented by a few questions aimed at obtaining some brief information on attitudes and previous practices with regard to contraception, as well as on the method of recruitment. A few questions will suffice, the aim is not to carry out a fertility survey.

2.2.2. *Processing of the questions.* A number of difficulties arise in the processing of these questions on the clientèle.

a) The simplest case is that of questions such as the method of recruitment : to know that 80 per cent of the women come because they heard about the family planning centre when they visited their MCH centre is an item of basic information which can immediately be interpreted.

b) A slightly more complex case is that of distribution by social category : how can an infinite number of individual social categories be coded under a small number of headings ?

This complex problem has been resolved by those responsible for census operations or statistical surveys, in most countries, by resorting as a rule to the concept of socio-professional category (spc) combining individual profession, status (employee, employer, domestic help, etc.) and type of activity (agriculture, industry, etc.).

One would therefore be well advised to call on these services to resolve the problem because of their experience and the possibility of making comparisons between nomenclatures by socio-professional category in the centre and those obtained in the census. Let us then consider such an analysis.

c) The problem of comparisons : let us take it that the problem of consolidating professions has been solved, and that we have found, for example, a proportion of 8 per cent of civil servants in the population group attending the centre. How should such a finding be interpreted ? In the same way, if it is found that 15 per cent of the centre's clientèle are aged between 15 and 19 years, what conclusion should be drawn ?

It is necessary to make a comparison with a « control group ». This may be done in the following way :

Choice of control group : if, for instance, it is a question of age distribution, one could look either at age distribution at the time of the census, or at distribution of births according to age of the mother. As contraception is linked with the existence of genital activity, the second solution would give a better base since the number of births by age varies according to this criterion.

Example : the following comparison.

Age groups	Centre	Births
15 - 19 years	15 %	8 %
20 - 24 -	20 %	10 %
etc.		

In this case, it appears that attendance at the centres concerns more especially the younger generations.

d) A more refined analysis can be made by taking into account results provided by the theory of sampling.

For instance, if the number of clients in the analysis is 1,500, the proportion of those aged 15-19 years in the centre will be 8 % ± 1.4 if the group corresponds to the population of the recruitment area. This is not so in the present case ; there is this a significant difference between the proportion of those aged 15-19 years in the centre and in the control population (see Annex 3).

To sum up, an analysis of clientèle can be made on the basis of the following points :

- determination of a few simple questions to establish the socio-demographic category, to which may be added a few points dealing with attitudes, recruitment, etc.;
- reference to existing data on the population as a whole in order to make comparison possible ;
- deduction of the differences between the population of the centre and the control population ;
- if need be, screen these differences by the statistical method of sampling.

2.3. - *Continuation rate* -

From the point of view of evaluation, two types of analyses are usually carried out at the level of the centres :

1) analyses dealing with the first visit, « entry » to the centre, which provides an opportunity for getting to know the client ;

2) analyses dealing with the duration of the client's stay in the centre.

This division corresponds with that found in many files and in statistical analysis (new patient, old patient).

2.3.1. The first visit. During this first contact, the following are usually determined :

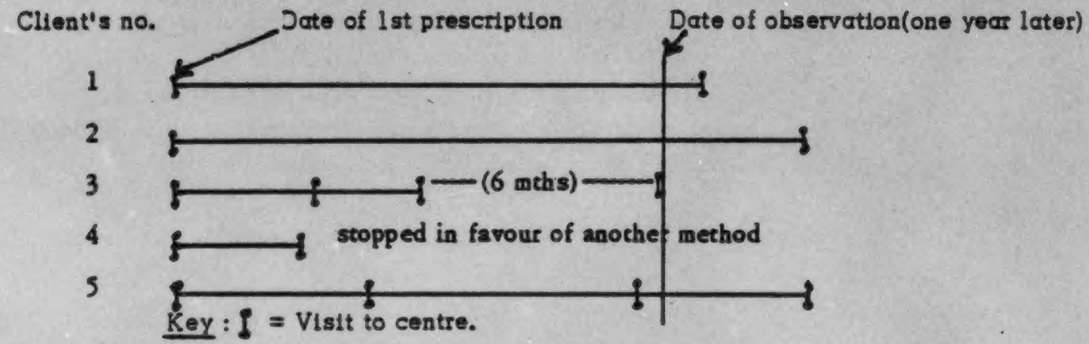
- general criteria of age, spc, etc., as a basis for clientèle studies ;
- recruitment : who advised her to come ;
- the request : contraception, advice, voluntary termination of pregnancy, etc.;
- the « response » : prescriptions, referral, advices, etc. ;
- obstetrical, medical and other antecedents.

2.3.2. ***Further visits.*** These take place in a time-span of which the study enables « continuity of centre attendance » to be determined with accuracy.

a) One-year continuation rate. By its principle, this method consists of calculating the percentage of couples who continue to practise contraception after a period of one year in the centre.

e.g. a « one-year continuation rate of 60 per cent » for the pill means that 60 women out of 100 continue to use the method one year after the first prescription.

The principle of calculation is as follows (in the case of the pill) :


Client's no.
Date of 1st prescription
Date of observation(one year later)
1
2
3
(6 mths)
4
stopped in favour of another method
5
Key : ⫶ = Visit to centre.

In this case, the continuation rate is 60 per cent (3 out of 5 clients persevering in use of the pill at the end of one year). An analysis of this kind raises the following problems :

- was the use of the method continuous ? A benchmark is available to answer this question : if the pill prescriptions are for three cycles, for example, one must be sure that the client returned every three months ;

- what is to be done about clients who have « not returned » ? In order to answer this question, an arbitrary time-limit must be set : in the above example, it is considered that any client who has not returned after six months has stopped the method in the centre (case no 3).

Any continuation study must therefore state at the outset the conventions decided upon for the analysis, if the results are to make sense ; in the above example it will have been stated that the client has dropped out if she does not return within six months.

b) Continuation rate by the life tables method*. This method has the additional advantage of giving year by year the drop-outs for each method by cause, thus permitting a study of the various contraceptives.

As before, calculation of the continuation rate implies that the following information is available :

- the date use of the contraceptive began ;
- dates of successive visits ;
- date and cause of drop-out or of last visit ;
- the assumptions decided upon with regard to clients who have «not returned».

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* A detailed description of this technique may be found particularly in the article by R.G. Potter : «Use-effectiveness of contraception» (see bibliography at the end of this article).

3 - *Data collection* -

In the preceding paragraphs we have defined the main basic indices needed to carry out an evaluation based on service statistics. We shall now set out briefly the principal questions which should be included in the file in order to enable these indices to be calculated, and then make some recommendations on the working of such a statistical system.

3.1. - *Records used* -

3.1.1. Type of record. Two main solutions are possible : either to use a statistical card intended for the service responsible for analysing the results, or to use a medical file on which each question to be analysed carries a number.

The first solution raises a problem of workload, in view of the number of records to be filled in during the visit ; the second requires secretarial work to transfer the information from the medical file on to a statistical card intended for the data processing services.

The choice therefore depends essentially on the users ; it may be mentioned in passing that the first solution is usually successful when the services concerned are highly motivated for evaluation, which is not always the case.

3.1.2. Content of the records. As pointed out earlier, it is necessary to distinguish between :

- first visit : for each new client comparatively detailed information will be asked for ;
- further visits : only the elements connected with follow-up of contraception are of concern to us from the statistical point of view.

The following headings are therefore proposed :

First visit

a) Identification : Name (optional)
Client's identification number
Number of the centre
Date of present visit

b) Civil status : Year of birth or age
Marital status
Nationality
Profession of the woman and of her husband

c) Visit : Recruitment (postpartum, physician, radio, etc.)
Reason (contraception - start, change, supervision - sterility, etc.)
Antecedents (medical, obstetrical, contraceptive, etc.)
Present contraceptive method
Outcome (prescription, referral, etc.).

Further visits

d) Revisits : Date of visit
Reason
Method used since last visit
if stopped : reason, date
if complications, specify
Outcome.

With the headings (a) and (d), a continuation study of use of method can be made (see 2.3. above). The headings (b) and (c) can be used for analysis of clientèle (see 2.2. above).

These various items of individual information may be supplemented by annual report results covering the activities of the centre (information given, number of hours of medical consultantship, staff employed, etc., the significance of which is discussed by D. Pierotti in the following section).

3.2. - *The organization of this statistical system* -

In the absence of specialized services, evaluation is usually carried out in the following way : the centres undertake a manual count on certain headings of the file, and the results are centralized by the appropriate ministry which keeps these results.

There are many problems involved in the organization of this work, particularly the problem of proficiency in statistical techniques. For such a system to work effectively, it must therefore be put in the charge of a supervisor, assisted by a statistician. We thus arrive at the following method of work :

- In the centres, the files or statistical cards are filled in, and the results transmitted to the evaluation cell.
- The evaluation cell is responsible for analysing the results, and transmits them regularly (at monthly or three-monthly intervals) to the centres and the national authorities. Furthermore, the information stored will be available for carrying out any study requiring a large number of files : comparison between centres, the interest of a particular contraceptive method, etc.

This type of organization enables the work to be carried out in satisfactory technical conditions ; also, it enables information to be circulated rapidly : if evaluation is to be fully accepted, the centres must be provided regularly with information on how they are working.

The cost of such an evaluation cell is usually low as compared with that of the centres, and it has the advantage of preventing the programme from falling into a static routine, because of the value of the information available for the supervisor who can thus take more effective action.

4 - *Summary* -

Evaluation may be defined as an effort to observe the daily output of services objectively ; it is a valuable instrument for those in charge of programmes who are anxious to improve the working of their programme.

The main points of reference that an evaluation system provides are as follows :

- population coverage rate,
- study of the clientèle,
- continuation rate of use of the methods.

To calculate these indices, a codable file or a statistical card may be used in the centre ; these records, once they have been transmitted to the evaluation cell, are processed and sent to the centres.

The supervisor also has available all the coded files, which make it possible to study any specific aspect of contraception.

Annex 7

Calculation of the couple-year prevalence index - IUDs

Generally only the proportion of IUDs still in place at the end of a given period is known. This is insufficient to determine the number of couples protected on the basis of the number of insertions carried out each year.

Maudlin has developed a formula for estimating the retention ratio R at the end of a period of time t =

$$R(t) = b e^{-rt}$$

where b : the proportion of IUDs inserted still in place at the end of the 1st month ;

e : the natural logarithm base (2.718) ;

r : probability of termination at the end of one year.

This formula makes it possible to estimate the number of years of protection afforded, during year t, to the couples who have had an IUD insertion during the year (t-a). This «prevalence in couple-years» P is calculated thus :

$$P = \frac{b}{r} \sum_{a=o}^{a=A} Q(t-a) \; x \left[e^{ra} - e^{-r(a+1)} \right]$$

where A : age of the IUD programme. For more details, consult S. Wishik - op. cit.

Example : (taken from a WHO workshop-conference, Cotonou, April 1973).

An IUD programme launched in 1965. A survey showed that :

$r = 0.2939$

$a = 0.9$

The number of insertions were as follows :

Year	Insertions
1968	3,000
1967	2,500
1966	2,400
1965	1,700

The prevalence index in 1968, calculated on the basis of the number of insertions in the programme, was obtained by the following calculation :

$$p = \frac{0.9}{0.2939} \Big[3{,}000 (e^{o} - e^{-0.2939}) + 2{,}500 (e^{-0.2939} - e^{-0.587})$$

$$+ 2{,}400 (e^{-0.587} - e^{-0.881}) + 1{,}700 (e^{-0.881} - e^{-1.175}) \Big]$$

The value p then = 5,355, corresponding to the number of couple-years protected in 1968 by the total number of IUDs inserted since 1965.

Annex 2

Calculation of the protection afforded by sterilizations

A precise estimate of the protection afforded during a given year by sterilizations requires that the number carried out each year be known in function of the age of the woman (female sterilization) and in function of the age of the man's partner (male sterilization).

Thus S_t^i : the number of sterilizations at age i during year t.

Knowing that sterilizations were carried out during the years t - a, how many couples are still protected by sterilization in year t ?

If we set aside the effect of mortality, all the couples whose age in t is less than 45 years are still protected by sterilization, that is, those for whom $i + a < 45$.

We then have : couples protected by sterilization during year t =

$$\sum_{t}^{t-a} \sum_{i=15}^{i=45-a} S_t^i$$

This calculation is only possible if sterilizations are known according to the age of the woman for each year studied. The approximate value calculated above is a maximum, for it does not take into account mortality which intervenes through the conversion factor 1 - aqi (probability of survival between age i and age i + a for persons under 45 years of age during year t).

In the absence of these detailed data, it is usually necessary to make assumptions with regard to age distribution and the annual number of sterilizations in order to obtain an estimate of the number of couples protected.

Annex 3

The convergence of the binomial law towards a Laplace-Gauss law entails that a random sample of size n drawn from a population of N individuals enables a true proportion P to be estimated by the proportion observed p. The value p in the sample will be within the following limits : (threshold of 5 per cent)

$$P - 2\sqrt{\frac{PQ}{n}} \quad p \quad P + 2\sqrt{\frac{PQ}{n}}$$

Application : In a family planning centre in 1976, of a total clientèle of 1,500 women seen, 15 per cent were between 15 and 19 years.

Furthermore, the age distribution of the births observed in the recruitment area showed a proportion of 8 per cent of mothers aged between 15 and 19 years.

Can the population group who attended the centre be considered to be representative of the women who were confined that year - in other words, is there a significant difference between these two populations groups who are sexually active ?

According to the above formula, if the two population groups were the same, the estimated proportion p should be within the limits $P \pm 2\sqrt{\frac{PQ}{n}}$, that is, between 6.6 and 9.4 per cent.

As the value p found was outside these limits, we can take it that a significant difference exists between these two values ; there is thus a high proportion of young women attending the family planning centre if we take as reference the births in function of the mother's age.

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   This manual deals in simplified form with the problem of the statistical cards needed in order to carry out an evaluation.

EVALUATION OF FAMILY PLANNING PROGRAMMES
PROBLEMS AND SOLUTIONS
THE EXAMPLE OF SELECTIVE SUPERVISION

D. PIEROTTI*

1 - *Introduction* -

Family planning programmes vary greatly according to their objectives. For some countries, reduction of the growth rate of the population remains the first priority ; others try by this means to improve the health status of the most necessitous section of the population ; and others again aim only at making the clinical services accessible to all, in order to give greater contraceptive comfort to the largest possible number of people.

Whatever may be the motives which led the authorities of a country to establish a family planning programme, the need for detailed information on the programme's activities very quickly becomes apparent. The findings of this information provide the means of determining whether or not the baseline objectives have been reached, and of recasting the programme if need be.

An evaluation outline is found to be an essential element in any programme ; a manager-administrator, statistician, or demographer is made responsible for preparing this outline.

We shall study some of the many problems which arise, and review in detail an interesting technique : selective supervision, which facilitates the rôle of the manager as well as that of the political authorities.

2 - *The place of evaluation in family planning programmes* -

Every administrator evaluates in one way or another the programmes for which he is responsible ; family planning programmes are no exception to this rule. Classically, a method of evaluation exists which is presented in quantitative terms and is generally drawn up in a simple way in the form of tables covering :

- the number of centres opened ;
- the number of staff working in the programme ;
- the number of new acceptors by age, method, parity, etc.

This type of evaluation has a number of advantages :

a) It is easy for unspecialized staff to fill in the tables ;

b) It enables the activities of the centres to be shown in a flattering light ;

c) It is unanimously accepted, as it is neutral and contains no value judgment or comparison.

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On the other hand, this type of evaluation can give only an imperfect view of the programme. For example : if the objectives for the year were to open ten centres, and if eight were actually opened, the evaluation can show the result as positive by stating that 80 per cent of the objective was met ; this is true, but tells us nothing about the working of the centres which were opened (the difficulties that may have been encountered, the choice of location, the rôle of the staff, etc.).

From this simple example it is easy to understand that evaluation may be presented in various forms, and consequently that a certain number of problems must be taken into consideration.

2.1. - Unpopularity of evaluation -

Evaluation is an unpopular activity ; it is often considered as a threat by those in charge. Certainly evaluation is a technique at the service of the administrators which enables them to have detailed knowledge of the programme activities and to check that their results reach the objectives set. But it is also an uncomfortable technique which may show up gaps and weaknesses in the programme and may thus constitute a threatening activity for those in charge.

It is therefore necessary to have an approach which is prudent and at the same time as objective as possible.

2.2. - Precise identification of objectives -

It is necessary to know exactly what one is talking about, and which aspects of the programme are to be evaluated. Not only do the programme's objectives vary, but they are often defined in terms which are extremely vague, not easy to quantify (such as improvement in maternal and infant morbidity), or impossible to attain (e.g. 30 per cent of women of reproductive age must attend family planning centres within the next two years). Finally, the true objectives may be camouflaged because they are politically unacceptable.

It is therefore necessary, in agreement with those in charge of the programmes, to redefine the objectives and limit them in volume and in time.

2.3. - Difficulties of measurement -

There are many technical problems involved in data collection : the raw material is established with an aim different from that of evaluation (the women's individual files are intended for medical rather than for statistical purposes) ; the staff fill in the cards with varying degrees of accuracy ; and some of the effects are difficult to measure immediately (e.g. improvement of the health of mother and child).

Very often evaluation was not foreseen in the initial planning ; it is only expressed in general terms which make it difficult to apply any evaluation outline once the staff have got into a routine. For example : in France the first recognized family planning centres were established at the beginning of 1974 ; the first annual report on their activities was proposed in November 1977 ; the plans for standard individual cards were abandoned after a discreet experimental period in 1976.

2.4. - Conflict on the selection of subjects for evaluation -

We have already seen that the objectives are rarely defined in precise terms.

This weakness of the programmes makes it possible to select subjects on the basis of their popularity, their neutrality, their obviousness, tradition, or political pressure. The evaluator may choose the subjects which are the easiest to achieve, or those with which he is most familiar.

There may also often be numerous conflicts between the administration which wants to show those of its programme activities that are the most favourable, the government which is only interested in a very precise objective, and the agency which is assisting the project and is interested in effectiveness and efficiency.

3 - Reference model for an evaluation outline for a family planning programme -

Whatever the evaluation outline that is planned, the three following elements will be found to be present : resources, activities, output.

3.1. - Resources -

There are four types of resources directly related to the programme :

- financing : from government sources, in the form of donations, assistance, or fees ;
- manpower : the different types of staff - educational, administrative, medical, paramedical, etc. - needed to carry out the programme ;
- supplies, equipment, and facilities ;
- techniques : refresher courses needed to train the various categories of staff.

Apart from these resources which can easily be verified by those in charge of the programme, there are others which are beyond their control, such as decisions made by women in favour of birth spacing, legislation on the free circulation of modern contraceptives, etc.

3.2. - Services -

These include all the activities provided through the resources available, such as information sessions, the number of pill cycles distributed, talks on the radio, printed publications, etc.

3.3. - Output -

There are three types of output in accordance with the objectives, and they may be either complementary or separate.

3.3.1. Change of attitude : e.g. the target population is more receptive to the idea of contraception.

3.3.2. Change in behaviour : e.g, the population uses the modern contraceptives made available through the services.

3.3.3. Change in the situation : with the use of effective contraception, infant mortality will decrease.

The following diagram summarizes the three complementary elements : the political authorities plan a programme, and their investment is in the form of resources which make available to the population services which, once they are used, result in changes of attitude, behaviour, or situation. Evaluation may be undertaken at the three levels.

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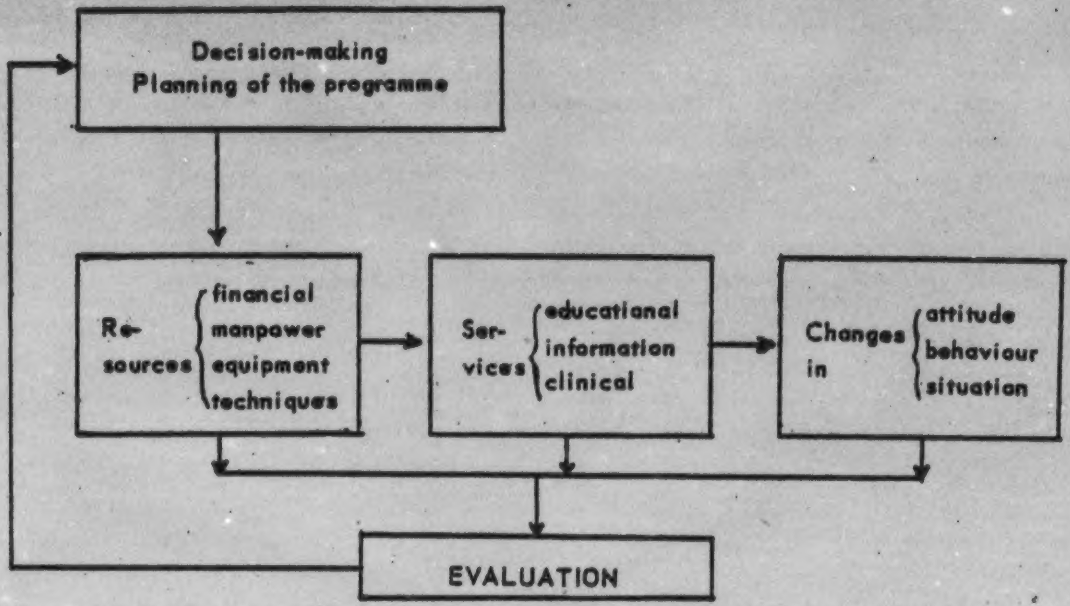
The results of the evaluation enable a fresh assessment of the situation to be made, and the programme to be modified if necessary.


Decision-making
Planning of the programme
Resources
financial
manpower
equipment
techniques
Services
educational
information
clinical
Changes in
attitude
behaviour
situation
EVALUATION

At this stage in our analysis, we need to take stock of the resources that are available for evaluation, and the techniques for collection of the data selected.

The following may be used (3) :

a) service statistics :
- individual cards
- reports on activities.

These make it possible to analyse the programme's resources and how they are used.

b) Additional specific studies on special subjects :
- KAP studies (knowledge, attitude, practice)
- studies on geographical distances and clinic attendance
- time and motion studies on waiting time, etc.

c) Statistical surveys :
- census, vital statistics
- surveys on household expenditure, etc.

d) Special studies :
- rôle of the child in society in the country under study
- relationship between urbanization and family size.

At this point in our analysis, three main questions have to be solved :

1. Should a specialized evaluation unit be established ?
2. Should this unit be an integral part of the programme or external to it ?
3. What is the main objective of the evaluation ?
   - To improve the conditions in which activities are carried out ?

- To allocate available resources more effectively ?
- To keep the political authorities informed on the achievement of objectives ?
- To make the demand for contraceptives coincide with the services offered ?
- etc.

The budget allocated for evaluation, the conception of the rôle of the person in charge of the programme, and the amount of pressure applied by the political authorities will help to provide elements of replies to the preceding questions.

It thus becomes clear that evaluation is not a rigid element fixed in the planning of the programme, but on the contrary a live dynamic element which varies greatly according to those responsible and the rôle assigned to them.

4 - *Administrator or manager* (5) -

We have already seen that whatever type of family planning programme it may be, an analysis of its activities in more or less elaborate form will be integrated into the programme. This analysis will vary according to the interest taken in the programme and the priority given to it by the political authorities, the resources made available to the director of the programme, and above all the spirit in which the latter considers evaluation. The director of the programme may indeed consider his rôle as being that of an administrator who must try to achieve the programme's objectives by adhering strictly to the application of the laws, decrees, ordinances, acts, and other regulations. In this case he will consider evaluation as no more than part of his routine work. On the other hand, if he considers himself as a manager, evaluation will become the essential tool with which he can accomplish his task ; through evaluation, he can find answers to the most pressing questions :

- Are my resources being used to the best advantage ?
- Are the staff carrying out the tasks required ?
- Are the clients receiving the services for which they have come ?

He may even go so far as to question how realistic or relevant the programme's objectives are by trying to adapt them to the requests and needs of the clients.

A manager's activities in planning, organization, motivation and supervision call for qualities of analysis, ease of communication, creativeness, and organization. If a programme director is envisaged with these qualities it is obvious that evaluation becomes an essential dynamic process in a programme. Seen in this light, evaluation considerably facilitates the management of the programme.

As an example, we shall consider in greater detail a technique of dynamic evaluation : selective supervision.

5 - *Selective supervision* -

Selective supervision is a technique of evaluation and management which should be widely used in all programmes.

It originated from an observation made by Professor Wishik (2), who found when visiting a number of countries that the way the centres were supervised was mechanical, systematic and uniform.

The basic idea stems from the principle that all centres (educational, information, and clinical training services) do not need to be supervised in the same manner. Some need to be visited more often and the staff require a great deal of encouragement, others need less close supervision. The results in certain fields also vary according to the centres. The method thus consists of classifying the centres in accordance with criteria determined by the programme's objectives and its sub-objectives set by those in charge.

There is thus a profile of general performance applicable to all centres. Each centre also has its own performance profile. The centres « deviating » from the general profile need to be studied and visited.

How should the centres be classified ? Use should be made of the resources available. In most programmes a monthly or quarterly report is sent to the director or the statistician. These reports put together enable an annual report to be submitted.

The quarterly reports provide information in more or less detail on the clients, their numbers, marital status, social and professional status, method used, etc., as well as on the staff employed and the volume of activities : number of educational, information, and clinic sessions, etc. These reports can provide the framework for selective supervision.

The programme director may also be interested in more refined studies :

- calculation of continuation rates for contraceptive methods by centre ;
- comparative calculation of certain rates - e.g. :

$$\frac{\text{number of clients}}{\text{hours of attendance of medical staff}} \times \text{week}$$

In the case of a classical administrator, the monthly reports are consolidated as a whole, usually in cumulative form, and the analysis remains superficial.

In the case of a director who uses selective supervision, he chooses about ten criteria which enable him to draw up the performance profile of all the centres and use it as a mean reference in relation to individual profiles. Any centre that does not conform to the general profile is examined and visited with care. As an example, let us study the two following indices :

1. Rate : $\dfrac{\text{New acceptors}}{\text{Old acceptors}} \times$ per annum

This rate shows whether the women are seen once, twice, or three times a year once they have accepted a method. In the programme under consideration, if a centre has only an average of one return visit a year for new acceptors whereas in the others the average is three, questions are asked : do the staff ask the women not to return ? Do the women come from a long way off and find it impossible to make the journey more than once or twice a year ? etc.

2. The rate : $\dfrac{\text{Number of clients}}{\text{Schedule (theoretical) of medical staff}} \times$ week

also gives an idea of the volume of clientèle served (see Table 1) by physician and by centre. In the example given, some considerable variations are found (Ste Suzanne : 1.3 clients per hour ; Piton St-Leu : 4.9). These variations may have an explanation in geographical location, organization of work, or may be lack of interest of the clientèle due to the inappropriate reception given them.

Table 1

Number of clients per hour of AROF physicians, 1 January-31 March 1976 *

	Number of hours worked per week	Total number of hours	Total number of clients	Clients per hour
Saint-Denis	41	492	1,833	3.7
Chaudron	6	72	314	4.4
Sainte-Suzanne	8	96	130	1.3
Saint-André	9	108	647	6.
Saint-Benoît	12	144	878	6.
Saint-Paul	12	144	492	3.4
Le Port	10	120	276	2.3
Saint-Louis	10	120	563	4.7
Saint-Pierre	16	192	765	4.
Tampon	11	132	477	3.6
Saint-Joseph	14	168	418	2.5
Sainte-Marie	4	48	154	3.2
Bois des Nèfles	2	24	103	4.3
Piton Saint-Leu	2	24	117	4.9
Rivière des Labris	2	24	98	4.1
Saint-Philippe	1 week/4	21	98	4.7

* From : « La régulation des naissances à l'Ile de La Réunion - Analyse et perspectives » (Tableau no 7) - Report on visit, 11 June - 2 July 1976. Ministry of Health, E.N.S.P. France - D. Pierotti, A.Jourdain, P. Lecorps.

The two examples given above tend to show that selective supervision provides the means for careful observation of similarities and differences ; it makes no decisions, it does not state what should or should not be done, but it is a point of departure based on actual facts which enables the necessary additional questions to be asked.

Finally, in cases where a country has two programmes - one in the private sector and one in the public sector - it helps in making comparative studies, corroborating trends, and giving each its rightful place.

Thus, in Reunion there are three programmes : a semi-private programme run by a private association (AROF), a public programme of integration of family planning into the maternal and child health programme, and a private programme of physicians in private practice. The particularity of these three programmes is that all three are financed by the State : the semi-private association and the MCH programme are subsidized directly, and the physicians in private practice indirectly (since 60 per cent of the population benefits from free medical care).

The problem which arose was a fairly simple one : each of the parties involved had complaints against the other two :

- the private association, the longest established, wanted the monopoly ;
- the MCH programme deplored the lack of cooperation from the association;
- the physicians in private practice complained of dishonest competition,

and in their turn were accused of incompetence.

It was necessary to select criteria of comparison. The first was a comparative study of contraceptives. The second was a comparative study of the cost of a new accepter in each of the programmes. The third studied the drift away from the private centres towards the MCH centres and physicians in private practice.

In this example it will be seen that the principle of selective supervision can also be applied to entire organizations, and that this comparatively simple method of management becomes an evaluation technique which enables those in charge to recommend reforms or ratify programmes using objective and realistic data as a basis.

Evaluation should no longer be the « poor relation » of family planning programmes. Its importance has been sufficiently demonstrated. Programme planners should no longer include it in vague and general terms, but on the contrary draw up a detailed description of its activities and its precise objectives. Budgetary provision for evaluation must also be made well before the first centres are opened, bearing in mind that the fuller and more detailed the information collected, the more expensive it will be.

But the cost of evaluation is largely offset by the decision-making that can result from it, based on precise, detailed and comparable indices of which selective supervision remains the best example.

The staff member responsible for evaluation must have a dynamic attitude to his work ; it does not just consist of counting up figures and filling in columns, but on the contrary places him at the focal point of a dynamic activity which makes it possible to correct the weaknesses and recognize the strong points of the various aspects of the programme.

Finally, whatever le quality of evaluation, attention must be given to the human problems of both staff and clients ; it must be undertaken tactfully and without aggressiveness, not forgetting that there are always several solutions to any one problem, and that the solution chosen should be the one that takes into account to the greatest possible extent not only the interests of the programme but also those of the people involved in it, both the clients and the staff.

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CHAPTER XI

THE ROLE AND TRAINING OF PERSONNEL

THE ROLE OF MIDWIVES AND NURSES IN FAMILY PLANNING

W. HADDAD

1 - *General considerations* -

Through their concern for individual, family and community health nurses and midwives have come to take an increasingly active interest in health services for family planning, and to consider them as an integral part of nursing and obstetrical care. In this context, they are in a unique and priority position, for the following reasons :

- they are frequently the most accessible members of the medical staff and by tradition those to whom people turn for help. They also have, at least in theory, the most time available ;
- they often see people in moments of crisis or intense nervous stress, as is the case in childbirth, abortion, or sickness, that is, at times when patients are most inclined to unveil their feelings and their most intimate problems ;
- since their work fits into many contexts (hospital, community, school, factory, and domiciliary services), they are familiar with the problems and frustrations of poor people, families, and youth ;
- they have the good fortune of enjoying the confidence, the respect and the friendship of others.

These circumstances give them very appreciable opportunities :

- to present the health and social benefits of family planning ;
- to include education on birth regulation in their programme of promotion of family health as a whole ;
- through their intuition and perseverance, to encourage women or couples to accept family planning as a new way of life, or to find means of promoting their family. As women (in the majority of cases these personnel are women), they can achieve the « woman to woman » approach which penetrates most deeply into home problems and produces a « permanent impact in every family ».

Family planning cannot be sold like an expendable item : *there must be motivation of those at risk, and adherence of those who use the services*, and this can only be achieved by *dialogue*.

During the three different phases of family planning activities, which are :

- the contacting phase ;
- the commencement phase,
- the maintenance phase,

their rôle and responsibilities lie in the following three fields :

- recruitment of users ;
- their care ;
- their education.

In order to play their part properly and contribute effectively to family planning activities, midwives, nurses, and their auxiliaries must have a background of knowledge of :

- the necessity and importance of family planning because of its impact on health ;
- the objectives of the family planning programme, the health policy with regard to family planning, and priorities in this field ;
- the advantages of integrating family planning into basic health services, and more especially into maternal and child health (MCH) services ;
- the contribution of the other members of the health team ;
- the various possible methods, and their indications and contra-indications.

If they are to reach the people who may benefit from family planning services and ensure their acceptance, the educational rôle of midwives and nurses is of primary importance. Its success is dependent on knowledge of the working environment :

- who are the people for whom family planning is a need ?
- where do opposition and obstruction to family planning come from ?
- where and when are family planning activities (information and services) available, in order to explain to patients : time and place ?
- which are the influential people with regard to acceptance of family planning ?
- etc.

(see also Chapter I : Family planning - M. Manciaux and W. Haddad).

Finally, midwives and nurses must be aware of their own attitude towards family planning :

- they may hesitate to discuss it because they themselves have been disappointed with contraceptive methods ;
- they may feel that this responsibility is outside their field ;
- they may be embarrassed to discuss this « purely personal » subject and thus intrude on the couple's sex life ; and when they do manage to discuss it they may wonder if they are capable of doing so as objectively as they should. This will lead them to wonder about themselves and to question the reasons which led them to deal with contraception. They frequently come to family planning centres to seek a solution to their own difficulties. In the field of sexuality it is essential at least to be aware of one's own problems before trying to solve those of others.

2 - *Specific rôles* -

2.1. - *Rôle in family planning education and motivation* -

Midwives and nurses may use a number of different approaches :

2.1.1. The individual approach or the face-to-face interview, which may take place in many different circumstances, especially during home-visiting, is the best way to adapt the interview to the patient's intellectual level and degree of maturity, as well as to her social and economic level, her cultural environment, and her needs.

This individual approach can be effective and positive :

- if relationships between the health personnel and the patient are such as to enable them to be at ease to discuss the subject ;
- if the discussion concentrates solely on the patient (man or woman), and his or her interests and worries ;
- if the place where the discussion is held is away from interruptions or distractions (for instance by children) ;
- if the midwives or nurses :
    . respect the patient's right to make her own decision, come back several times for further discussion if need be, and obtain cooperation from influential members of the family. They must explain, clarify, overcome doubts, and correct points that the patient has not properly understood, all without imposing themselves ;
    . also, in the case of an unmarried mother, they must not refuse (on moral grounds) to give her all the necessary advice, for in the last analysis it is the child who will suffer the most.

2.1.2. *The group approach* is very useful, for instance, with a group of mothers or relatives in family planning or MCH centres ; with a group of patients in maternity hospitals ; or with a group of schoolchildren in the top classes, etc. It has the following advantages :

- it provides an opportunity for patients to express themselves more freely in the presence of others who are in the same position as themselves, often better than if they were alone with a midwife or a nurse, and it thus helps to get rid of their fears and anxieties ;
- mothers and fathers who are satisfied with contraception tell the others so, which is beneficial ;
- in a group, individuals benefit from the various questions asked during the session and feel mutually encouraged by the decisions made on one side or the other.

This method is effective :

- when the group is a small one and its members are interested in family planning or health aspects ;
- if the members of the group are encouraged to talk freely about family planning ;
- if the midwife or nurse has prepared the discussion in advance, taking into account not only the kind of information to be given to the patients but also their needs, their interests and their problems and what they already know about family planning, and has brought some audio-visual aids to illustrate the discussion should the opportunity arise.

2.1.3. *The community approach* is most important, for very few people make a positive decision with regard to the adoption of family planning if the general opinion of the community is against this practice.

The use of mass media is very useful to create an atmosphere which is favourable to family planning, but this will be still more effective if the midwife or the nurse follows up this activity by individual or group contacts, relying on satisfied patients and the influential people in the community.

Also, within the community the midwives and nurses will have a number of opportunities to take part in interdisciplinary educational activities, when they will be able to discuss the importance of family planning and the resources available, and to say that they are at the disposal of anyone - men or women - who would like to ask their advice.

2.1.4. *The school approach.* This approach is ideal for the preparation of future parents, to help them acquire knowledge and a positive attitude on sexuality and on their own future rôle with regard to the population explosion.

It is possible to proceed in several ways :

- by group discussions, backed up by the projection of films and slides, for pupils in the top classes ;
- in class, during natural history lessons on reproduction, and domestic science classes including demonstrations of infant care. For older pupils, sessions on sex education may be given ;
- by a round-table with the teaching staff, and if necessary in the presence of a doctor or a sexologist ;
- by helping to draw up examination questions on the subject ;
- etc.

Furthermore, nurses and midwives should know that comparatively few adolescent girls who are sexually active use contraceptives regularly. Although they know about contraceptive methods, they do not use them for several reasons :

- a large number of adolescents are ignorant of reproductive physiology and the consequences of sexual intercourse ;
- they dare not tell their parents, teachers, or other people older than themselves that they have sexual intercourse ;
- they do not know where to get contraceptives or are afraid of their effects ;
- some even want to punish themselves by not using any form of contraception, or are seeking an object of love, warmth and affection, or wish to give proof of their fertility.

Thus, in their rôle of educating young people, nurses and midwives - with the help of the social services if necessary - should always consider these various aspects, particularly the psycho-social aspects of the attitude and behaviour of young people towards contraception, and should respond to their needs.

2.1.5. *The mass approach*, which brings in the use of mass media. Mass communication is not within the province of midwives or nurses, unless they give a talk on television, for instance. However, this may be a guide and round off their educational efforts in this field. Nurses'and midwives must be aware that education on family planning is particularly effective when the channels of communication used are suitable and acceptable for the population. In other words, the choice of methods or approaches in communication must be suited to local conditions.

2.2. - *Rôle in orientation* -

If midwives and nurses are to give people the right kind of guidance, they

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must :

2.2.1. *make sure that the patient wants to be given guidance, because :*

- she has decided to adopt a contraceptive method ;
- she wants a medical diagnosis on her infertility or treatment for a gynaecological problem ;
- she needs advice and help to solve social or emotional problems.

2.2.2. *refer the patient with a liaison card to the appropriate person or service :*

- a family planning centre ;
- other health services in accordance with the patient's needs ;
- an expert, such as : a psychiatrist if there are emotional and psychological obstacles ; a social worker if there is a lack of matrimonial understanding or friction in the family, or in the case of a pregnant woman who has been abandoned, and when the fate of the child must be considered (in the case of unmarried mothers).

2.2.3. *prepare the patient for this experience.* This is an extremely important step, because fear of the unknown may be a strong weapon of dissuasion.

Husbands should be encouraged to accompany their wife, since the contraceptive method to be used must be accepted by the couple.

2.3. - *Rôle in the clinic* -

The rôle of the nurse or midwife is very important because the patients' acceptance of the family planning method chosen depends very largely on her. Also, since family planning is chiefly a service of preventive medicine, patients come to the clinic in a different state of mind from that in which they come for treatment of an acute condition, pain or a disease. For this reason,

- she should give patients a warm welcome and treat them courteously to ensure that they are receptive and will return for further care. This proper handling of the patients is the most delicate aspect of the clinic's work, and the centre's reputation depends to a large extent on how politely and professionally the clients are treated ;
- she should preferably not mix new patients for family planning with those who come to the clinic for a check-up ;
- she should begin with those who have real need of a contraceptive method.

The nurse or midwife has the following functions :

2.3.1. *During the first interview with a new patient or couple :*

- to assess their knowledge ;
- to give basic indications on reproductive physiology ;
- to explain the various methods that are acceptable and that can be obtained, indicating advantages and disadvantages ;
- to clarify points that have not been clearly understood ;
- to explain the clinic's procedure.

2.3.2. *If a patient or a couple arrive with a definite opinion on the method which she (or he) wishes to use :*

- decide herself, or refer them to the physician for him to decide whether or not there is a contraindication or factors that may affect the choice of a method ;

- write up the case-history, and carry out whatever laboratory tests might be needed ;
- make the patient feel at ease and help her to prepare herself for the medical examination ;
- explain to her the object of the pelvic examination and Papanicolaou smear (if this is to be done) to remove from her mind any connexion between contraception and cancer or disease.

2.3.3. *During the medical examination* :

- insert the intrauterine device or assist the physician during the examination and the insertion, at the same time reassuring the patient and helping her to relax.

2.3.4. *When a method has been chosen and accepted* :

- tell the patient what she needs to know about the method chosen ;
- emphasize the importance of returning to the clinic for periodic check-ups ;
- explain :

. *to a patient after insertion of an intrauterine device*, that immediately after insertion and for a few months afterwards there may be side-effects such as cramps, bleeding or vaginal discharge, or longer and more profuse periods, etc., but that these troubles generally tend to decrease after two cycles ; warn her of the possibility of the IUD being expelled, especially during the first few months and during menstruation ; stress that she must come back after six weeks, and subsequently once a year, for a medical check-up in order to dispel any unjustified anxiety she may have and treat any adverse reaction ;

. *to a woman who is taking a hormonal contraceptive*, that it may produce side-effects such as nausea, vomiting, variations in weight, and headaches, which will tend to grow progressively less ; that she must come back after six to eight weeks or at any rate during the first three months for a check-up ; the nurse or midwife must make sure that the woman has understood the development of the cycle and the correct use of this contraceptive ;

. *if a diaphragm has been prescribed*, she must make sure that the woman has fully understood the use of the diaphragm, how to insert it and how to maintain it ;

. *if the rhythm method is used*, it will have to be explained very clearly because there may be many wrong interpretations and, since the method itself is less reliable than the others, it requires special education ;

. *if chemical barriers are used* (foams or vaginal foam tablets, creams and jellies, etc.), women who use these methods must be advised to be very careful of their personal hygiene and to use and apply correctly the spermicide that is selected. In the case of foams, tablets and sprays, the women concerned must be told to introduce the chemical deeply into the vagina not less than five minutes and not more than one hour before any intercourse. Foam tablets must be moistened before they are introduced ;

. *if the condom is used*, its method of use must be explained, and the man must be advised to use a spermicide with it for greater protection. The woman must also be advised to use a lubricant if the vagina is dry ;

- go over all the instructions and advice given by her or by the physician with the patient, to clarify them and lay stress on what is really essential, as well as to ensure that the advice given has been fully understood and accepted by the patient. Only then will patients come back for advice or help later on ; the initial acceptance of a family planning service has never been a guarantee of continuous use or attendance at a clinic ;
- assure each patient that if she has the slightest problem she can come back at any time for a check-up, and that she will be listened to and given advice and care if need be ;
- provide the patients with literature on the method prescribed, and use audio-visual aids whenever possible.

2.3.5. *When providing follow-up, nurses and midwives are involved in three activities :*

a) - routine check-up of patients who come back to the family planning clinic for regularly scheduled check-ups. In this case their rôle is :

- to reassure the patients ;
- to find out :
  - . if the method prescribed is being used correctly ;
  - . if there have been any problems (side-effects or difficulties) ;
  - . if the patient has any questions to ask. This is important because a patient who has decided to adopt family planning may feel the need to talk about it to someone who will listen to her ;
  - . if the patient needs a further supply of contraceptives ;
- to give suitable advice and guidance ;
- to examine the patient or help the physician :
  - . during the examination (of breasts, abdomen and pelvis) after one year for satisfied patients who tolerate the method chosen satisfactorily ;
  - . during examination of patients who have had an intrauterine device inserted six weeks earlier, to make sure that the device is in place and that the women is satisfied with the method.

b) - check-up motivated by problems that have arisen, when a patient returns because she has a problem with the contraceptive method chosen. In such cases, the nurse or midwife must :

- explore certain fields, evaluate them, and refer them to the physician if necessary ;
- determine whether the complications are minor or serious ;
- establish whether it is really necessary to change the method. In this case she must respect any personal decision to abandon a method, whether it be for medical, social, or psychological reasons ;
- probe the possibility that the patient may have become pregnant in spite of using a contraceptive ;
- decide whether it is necessary to help in having the child adopted ;
- try to resolve, if need be, the psycho-social aspects with the help of the social worker ; when medical problems connected with contraception are involved,

beyond the competence of the midwife or nurse, they must be solved medically by the physician. This will help to minimize the negative attitude when people are not satisfied with the method chosen, and avoid the withdrawal of a large proportion of intrauterine devices and the discouragement of possible acceptors.

c) - furthermore, nurses or midwives may be called upon to :

- make referral of individuals moving to another locality, to the services available there ;
- ensure that couples who have given up contraception in order to have a child return after the child is born ;
- remove from the files the cards of women who have reached the menopause or who have died, and keep regularly up-to-date the cards of family planning users.

2.3.6. *Additional responsibilities :*

- fill in the necessary forms carefully and clearly, and maintain patients' cards in good order and in a safe place ;
- keep instruments and supplies clean and ready for use in the clinic ;
- take special precautions, during sterilization of instruments, against cross-infection ;
- ensure that there are sufficient supplies and drugs ready for distribution when needed ;
- ensure that the medical aspect of the clinic, as well as the upkeep of the buildings, are maintained in good condition.

2.3.7. *For surgical methods*

a) - in cases of male sterilization (vasectomy), when nurses and midwives help to prepare men who are undergoing vasectomy, they must also be made responsible for ensuring that the consequences have been fully understood. It is essential for husband and wife to be in complete agreement on the decision made, in order to avoid psycho-social problems in the future. Nurses and midwives who make home-visits must be able to sum up the family situation in this regard. They must make it clear (if necessary through the intermediary of a male member of the health staff) to men who wish to obtain information on this contraceptive method that sterilization is not equivalent to castration ; that the testicles remain intact and continue to produce sex hormones ; that the seminal fluid will continue to be just as plentiful, and will have the same appearance, as before ; and that it will be necessary to continue to use other contraceptive methods for a certain time after the operation, since a residue of spermatozoa may remain, sometimes for more than three months.

b) - in cases of female sterilization, nurses and midwives who take part in the initial instruction and in the preparation of women who are undergoing sterilization must not lose sight of the fact that some methods of sterilization are more reversible than others, and they should advise the women concerned to seek advice from the physician. They must also make it clear that the ovaries will not be affected, that they will continue to produce sex hormones which will enter the circulatory system, and that since the uterus is not affected by the operation, menstruation will be maintained.

When a woman regrets that she has been sterilized and shows resentment towards her husband for having given his consent to the operation, the nurse or midwife can try to lessen her resentment by reminding her of the mental and social sequelae of repeated pregnancies, and thus prevent her from becoming estranged from her husband or divorcing him.

c) - in cases of abortion as a method of birth regulation, in countries where abortion is legalized for medical, social, or humanitarian reasons, the nurse or the midwife has a rôle to play : (a) in the psychological and physical preparation of the patient ; (b) in the control of mental and physical problems that may arise afterwards ; and (c) in seeking for a solution to such problems in collaboration with the physician.

2.3.8. *When patients are referred to the centre after hospitalization,* the nurse or midwife must make sure that there is continuity of care after they leave hospital.

2.3.9. *In cases of infertility and sterility,* nurses and midwives must reassure couples in the former case, so that they are not too worried if conception takes a year or more. They must know and understand the beliefs and socio-cultural practices of the community with regard to infertility, and be capable of identifying victims of traditional practices and referring them to the appropriate medical services.

Sterility is a problem which requires a much more personalized approach and care, for it involves an important emotional factor that nurses and midwives must never lose sight of during clinic visits and treatment ; in such cases their rôle is to dispel doubts, fears, or feelings of guilt in the couple, to discover the cause or causes, and to find the appropriate solution.

2.4. - *Rôle in the upkeep of medical files and in follow-up* -

Follow-up of patients is an important aspect of the responsibilities of nurses and midwives in a family planning programme. This ensures continuous supervision of the files of individuals or couples who need help in applying satisfactorily the prescription or the advice they have been given, or who need further supplies.

In addition to the follow-up of acceptors, special attention needs to be given to those who give up contraception.

Follow-up may be carried out in two ways : by an approach based on the centre, or by a community approach.

2.4.1. *An approach based on the clinic* has been described in paragraph 2.3.5.

2.4.2. *The community approach* is aimed at contact with the patients by nurses, midwives, or other health workers outside the clinic itself. This system may consist of home-visits or, in some areas, of using the post or the telephone to inform patients of their appointment. When appointments are not kept, special attention should be paid to those who regularly miss their appointments. Individual follw-up visits should be paid periodically to such patients to encourage them to continue with contraception. Subsequently, follow-up visits must be paid in connexion with other activities carried out by all the health personnel with the patients, and these should be made a further opportunity for discussing family planning.

When working in the community, midwives and nurses should take every opportunity to make contraception a socially accepted attitude and to help users of family planning to avoid obstacles to its continued use, as well as arouse the interest of non-users in family planning.

2.5. - Rôle in research -

Nurses and midwives should not underestimate the part they can play in research, whether by collection of data related to family planning (for instance, contraceptive methods used, their side-effects and contraindications if there are any, perseverance in their use, their efficacy, and any other observations which they find appropriate), or by planning and carrying out special studies, or else by training and supervision of other people (health workers and members of the community) whose task it is to collect information.

Furthermore, they may also contribute usefully to research by collecting precise data for the establishment of obstetrical and paediatric files, as these may bring out individual and family problems that the nurses and midwives can help to solve as part of their work in family planning.

2.6. - Rôle of nursing or midwifery supervisors -

The rôles and responsibilities of nursing and midwifery supervisors in family planning may be described under four main headings :

2.6.1. *Responsibility towards the health service which employs them* :

- for maintaining the quality and the amount of family planning activities ;
- for making provision for the help needed for staff development ;
- for interpreting the needs of the staff ;
- for taking part in the dissemination of family planning policy in the community ;
- for participating in the evaluation of family planning activities to find out to what extent the objectives have been achieved, by studying :
  - . the effect of the programme on the birth rate ;
  - . methods and extension of their use ;
  - . their effectiveness ;
  - . complications of each method of contraception ;
  - . the state of knowledge, attitudes, and practice, and any changes in these fields ;
  - . any other observations pertinent to the preparation of statistics and reports ;
- for coordinating and guiding all efforts towards accomplishment of the aims ;
- and for being in charge of practical training and supervision, and of in-service training of staff and students.

2.6.2. *Responsibility towards the staff* :

- for being aware of the level of education of the staff, their motivations, their abilities, and their emotional balance ;

- for ensuring that the staff :
  . understand the policy and aims of the health service with regard to family planning ;
  . consider contraception as part of general care in the same way as a medical examination, a blood test or an urinanalysis,and that they have a favourable attitude towards it ;
  . know the work they are expected to carry out with regard to family planning, and the aims towards which they should be working :
    - what must be done,
    - how it must be done
    - who must do it,
    - when it must be done ;
- for ensuring, when organizing and distributing work responsibilities, that an adequate balance is maintained among all the activities, particularly by leaving staff sufficient time to be able to find out if patients have sufficient knowledge to avoid further pregnancies ;
- for reviewing and assessing together with the staff :
  . whether the targets have been met ,
  . whether the paperwork is up-to-date,
  . to what extent it has been useful for other health care,
  . what problems and difficulties they have encountered ;
- for providing assistance and guidance as required for efficient work by the staff, helping them more particularly :
  . to solve the problems and difficulties encountered when introducing family planning or in any other aspect of family planning work ;
  . by recording and considering systematically everything concerned with family planning activities, and emphasizing the importance of collecting information which may serve as a basis for evaluation and for improving family planning care ;
  . by discussing the weaknesses of staff who have failed in their task :
    - the objectives may be beyond their capacity, or
    - they may need help to improve their work and be sure of getting the best out of it ;
  . by reassuring and encouraging staff who have made a significant contribution to the results of the programme to give them self-esteem and a sense of satisfaction in their work ;
- for promoting effort in a common cause and ensuring that there is good coordination among the staff ;
- for maintaining discipline ;
- for determining needs and ensuring that equipment and supplies are available ;
- for stimulating staff development and keeping the staff informed of new developments in contraceptive methods and new drugs and techniques.

2.6.3. *Responsibility in the training of student nurses and midwives* :

- for acquiring experience by observation and participation in order to help students :

. to gain new understanding and skills in their eventual rôle in a family planning programme, by working with the members of the health service staff to meet the needs of individuals, families, and the community;

. to develop the ability to work really as a member of the health team;

- for contributing to the students' knowledge and recognition of their limitations and the possibility of seeking supervision or any other help ;
- for dealing with all training procedures which include family planning ;
- for helping to assess the students' performance.

2.6.4. *Responsibility towards their own rôle.* With the aim of meeting the expectations of the health service which employs them, and of planning, organizing, directing, delegating, developing, coordinating and controlling the staff and their activities, they should :

- be familiar with the aims and objectives of the health service, its policy and methods, and the philosophy and aims of training of nurses and midwives ;
- know their tasks, duties and responsibilities, as well as their place in the organizational structure, and accept their rôle ;
- continuously examine and improve their own methods and outlook because of their effect on the behaviour of the staff.

On this basis they must understand and apply the basic principles and the techniques of good management.

2.7. - *Summary and conclusions* -

Because of the many factors involved, this chapter cannot claim to set out all the functions that nurses and midwives may be called upon to carry out in connexion with family planning, or to enumerate all the tasks which are involved in these functions. The functions and the tasks vary according to the attitude of the nurse or midwife towards family planning, according to her position within the health team, and according to the medical, social, cultural, economic and geographical context in which she is working. As family planning programmes develop, nurses and midwives will keep up-to-date with changes and progress in this field, and will discover for themselves what means are open to them for participating effectively in these activities for the benefit of the family.

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TRAINING IN FAMILY PLANNING FOR NURSES AND MIDWIVES

W. HADDAD

1 - *Introduction* -

Several WHO expert groups have stressed that all health personnel must know that family planning is one of the elements of general health activities and that it therefore falls within their responsibilities. They have emphasized the fact that such personnel should thus acquire adequate training in this field, this being one of the conditions on which an effective family planning programme depends, and that this training should be considered in the way that was officially adopted by the Twenty-first World Health Assembly : that is, that family planning implies a certain way of thinking and living freely adopted by individuals in the interests of their health and that of their family, and that in more general terms it promotes social progress in the community as a whole.

2 - *Organization of family planning teaching* -

2.1. - *Definition of educational objectives* -

The first thing to be done when a syllabus is being drawn up is to define its objectives. These will serve as criteria for establishing the broad lines of the syllabus, defining practical work, choosing teaching methods, and deciding on means of evaluation.

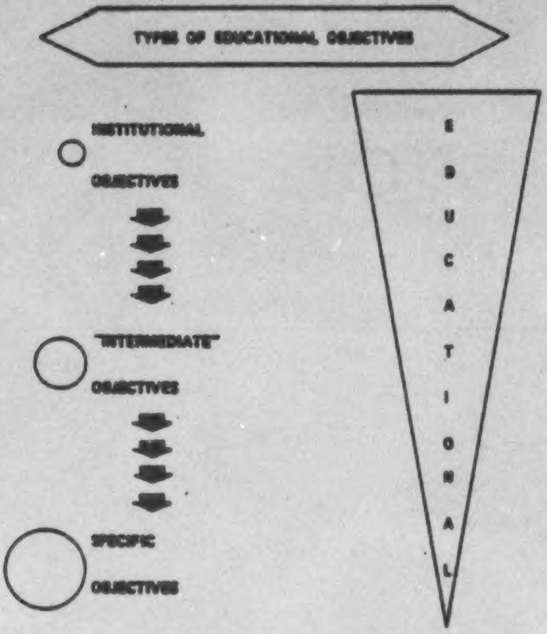
There are several kinds of objectives :

2.1.1. Institutional objectives, which indicate a school's general aims. For instance : at the end of their basic training, health personnel must be able to provide the population with complete preventive and curative care in maternal and child health/ family planning within a system of integrated health care.

2.1.2. Intermediate objectives, which are still broad and defined on the basis of the general objectives. For instance : at the end of their training, students must be capable of planning and providing, in cooperation with the other members of the team, clinic sessions on contraception for a group of multiparous women.

2.1.3. Specific objectives, which correspond with a precise and measurable task. For instance : at the end of her training, a midwife must be able to insert an intrauterine device.

Thus, the definition of the educational objective is that of the result sought for, and not the description or summary of the syllabus.


TYPES OF EDUCATIONAL OBJECTIVES
INSTITUTIONAL
OBJECTIVES
"INTERMEDIATE"
OBJECTIVES
SPECIFIC
OBJECTIVES
EDUCATIONAL

Note: The size of the circles (left) is directly related to the amount (number) of objectives: the more they are specific the more numerous they are; the triangle (right) indicates that at INSTITUTIONAL level objectives are "wide", vague and that specific objectives are "punctual", narrow, precise.

Source : WHO, Offset publication no 35.

These educational objectives must be clearly formulated, and should indicate :

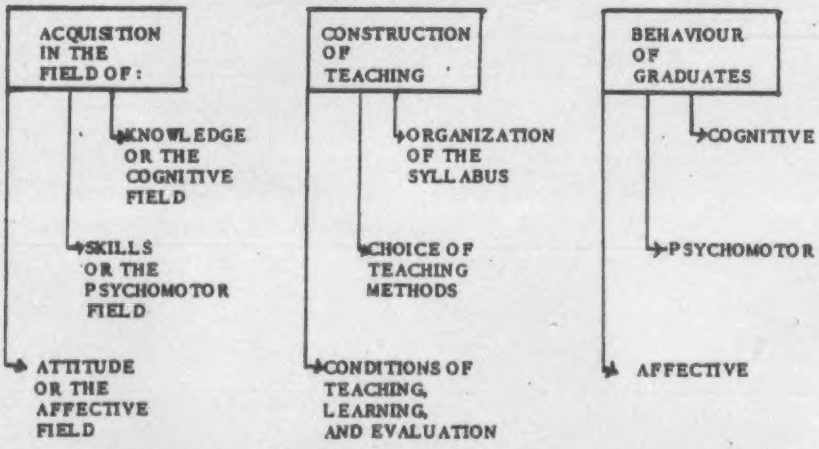
- knowledge or the cognitive field, that is, knowledge and understanding of facts, concepts, principles, etc., the ability to analyse and interpret data, to solve problems, to evaluate a situation, etc. ;

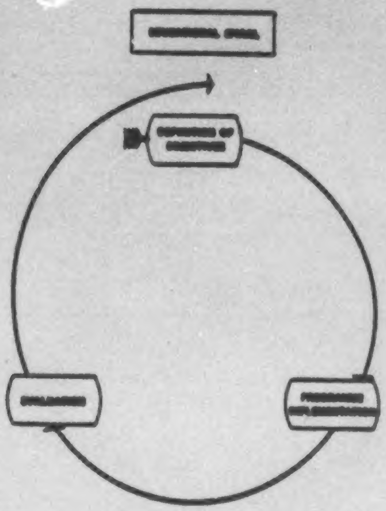
- skills or the psychomotor field, that is, technical skill and gestures used in one's professional work to insert and withdraw an IUD, make an examination, converse, listen, communicate, make precise and accurate observations, etc. ;

- attitude or the affective field, that is, an individual's attitudes and behaviour, habits, scales of values, etc.

which students must be able to demonstrate at the end of their training.

FORMULATION OF OBJECTIVES


ACQUISITION IN THE FIELD OF :
KNOWLEDGE OR THE COGNITIVE FIELD
SKILLS OR THE PSYCHOMOTOR FIELD
ATTITUDE OR THE AFFECTIVE FIELD
CONSTRUCTION OF TEACHING
ORGANIZATION OF THE SYLLABUS
CHOICE OF TEACHING METHODS
CONDITIONS OF TEACHING, LEARNING, AND EVALUATION
BEHAVIOUR OF GRADUATES
COGNITIVE
PSYCHOMOTOR
AFFECTIVE



Source : WHO, Offset publication no 35

2.2. - *Determination of educational objectives* -

In order to determine these objectives, the following considerations must be taken into account :

2.2.1. *Compatibility with government policy* on family planning, and with the objectives of the family planning component of the programme as compared with the global objectives, priority activities, sectors to which preference is to be given, etc.

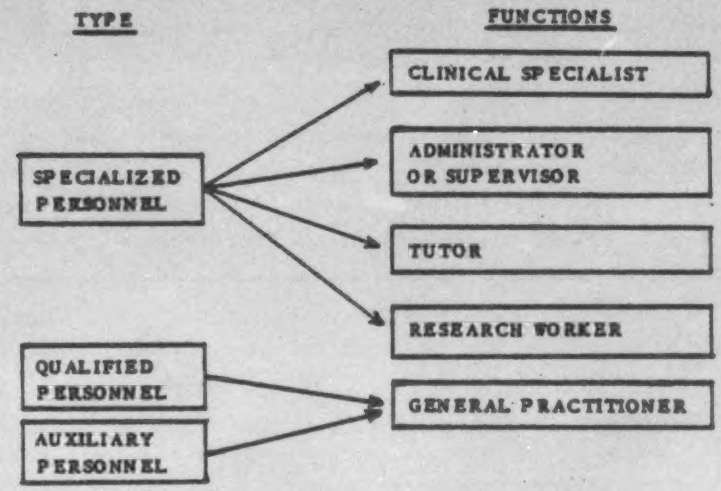
2.2.2. *Determination of available resources* : teaching staff, buildings, equipment, financial resources, etc., and existing facilities for appropriate practical work and for its coordination with the theoretical training.

2.2.3. *Determination of the type of personnel* required, and of the tasks that can be entrusted to this personnel.

In the context of family planning services, nurses and midwives may work in at least one of the following ways :

- as a «general practitioner», working in any setting and providing information, education, and general guidance ;
- as a «clinical specialist», responsible for applying the techniques and procedures associated with family planning ;
- as an «administrator and/or supervisor» of nursing and obstetrical services for family planning ;
- as a «teacher» of family planning programmes in schools of nursing and midwifery ;
- as a «research worker» investigating service and training aspects of nursing and midwifery in the field of family planning.

PERSONNEL (nurses/midwives) PARTICIPATING IN FAMILY PLANNING PROGRAMMES



2.2.4. *Determination of the student profile* : from the point of view of socio-cultural origin, seeking particularly the pressures to which they are subjected in their environment ; the influence of elderly people, or people who are hostile to modern ideas, etc. In other words, it will be a question of bringing to light attitudes prevalent in their environment on women's rights, sexuality, family planning, respect for one's elders, etc.

2.2.5. *Training under conditions comparable* with those which the nurses and midwives will later encounter in the course of their work.

2.2.6. *Coordination,* in the study of certain parts of the programme, with training provided for other types of medical and social personnel (development of a team spirit).

2.2.7. *Taking into account* :

- information and methods required both to evaluate and to revise the syllabus in the light of the results obtained by the students ;
- teaching staff, teaching methods, content of the programme, physical facilities, equipment, etc.

2.3. - *Teaching staff* -

Teachers will always be one of the central components of the educational process : motivation of the students in problems connected with development of the family planning depends very much on their personal attitude - «you do not teach what you know, but what you are».

As human beings, teachers are bound to have opinions, preconceived ideas, attitudes, and values to which they are attached. In stating facts, they influence their students by their interpretations and attitudes towards the subject of family planning ; it is thus important to have teachers who are well trained and experienced in educational methods, and especially who are free of internal conflicts. This is extremely important, and I would go further : before beginning to teach, they must recognize their own needs and their predisposition to insecurity when they teach human sexuality. Their attitude must be objective and tolerant, and they must give a living and convincing example of professional enthusiasm. They must always keep abreast of new ideas and new methods and techniques of family planning, and be capable of adapting to them. They must be aware of their professional responsibilities towards their students, their colleagues, and the public.

The teaching staff must be multidisciplinary : they may be nursing and midwifery staff specialized in training, administration, supervision, public health, or family planning techniques and procedures ; or they may be physicians, epidemiologists, health educators, psycho-sociologists, educational specialists, religious leaders, legislators, economists, statisticians, and finally operational personnel and other resource personnel who are familiar with problems in the field. Also, as far as possible, the students themselves, under the guidance of the teaching staff, must take part in the training process.

2.4. - *Recruitment and selection of students* -

The success of any training programme depends largely on the level, the quality, and the motivation of the candidates chosen.

Criteria for their selection must be established in accordance with the programme. In general, there are three categories of candidates :

a) auxiliary personnel, who will be trained for tasks in a well-defined sphere of activity ;

b) qualified personnel, who will be prepared to provide competent care with a sense of responsibility, using judgment, initiative, and adaptability to varying situations ;

c) specialized personnel, who will have higher specialized training enabling them to undertake operational responsibilities in the fields of clinical work, administration, teaching, and research.

2.5. - *Content of the teaching programme* -

Because of the differences between the training systems for this type of personnel and the structure of teaching staff in various countries, there is no universally valid training programme in family planning. The programme must be drawn up in accordance with the special needs of each country, the basic level of the personnel who are to be trained, and the tasks to which they will be assigned. The teaching may constitute a course in itself, or it may be planned as a continuous process integrated with most aspects of nursing and midwifery training. For instance :

- the subjects of reproduction, infertility or sterility may be dealt with together with the basic sciences (anatomy, physiology, biochemistry, pharmacology, and pathology) ;
- contraceptive techniques may be taught together with gynaecology and obstetrics ;
- study of the family and resistance to family planning may be included in courses on sociology, etc.

CONTENT OF TEACHING
(Example)

TOPICS		DEALT WITH UNDER :	POST-BASIC
Basic subjects	Sexuality Reproduction Sterility and infertility	Basic sciences : - Anatomy/physiology - Pathology - Biochemistry - Pharmacology	Specialization and in-service training
Reference subjects	Demographic problems (statistics) Family planning : health aspects Obstacles to the practice of family planning : family, religion, etc. Organization of family planning programmes Communication and health education techniques	Preventive medicine : epidemiology, statistics, nutrition, MCH, etc Social and human sciences Applied teaching methodology also Public health administration Paediatrics Psychiatry Ethics	
Techniques	Methodology of contraception Sterilization (M, F) Abortion Surgery for sterility and infertility	Obstetrics Gynaecology also Medical-surgical nursing Legislation	
Field practice	Observation Reflection Initiative Technical and educational responsibility	Hospitals, maternities, family planning clinics Health centres, dispensaries, schools, homes, community etc.	

This teaching must in any case :

- provide students with the requisite information ;
- give them psycho-pedagogic and technical training ;
- help them develop the right attitude.

EXAMPLE OF INTEGRATED TEACHING

Subjects included in the programme where the topic «family planning» may be introduced or emphasized	Proposed elements	Suggested additions Teaching methods Lectures, discussions, practical work, field work. Audio-visual aids.	Remarks
e.g. Anatomy Physiology Reproduction : - male genital system - female genital system	Stress these different subjects, and the regulation of certain mechanisms (puberty in boys and girls, menstruation, fertility for both sexes, etc.).	Lectures illustrated by tables, charts, slides, films, etc.	In some cases students are somewhat reluctant to put questions verbally : if so, it may be better to suggest they be put in writing, and to give the answers collectively
e.g. Pharmacology	Oral contraceptives and injectables : their composition, action, side-effects, contraindications, acceptability, and cost. Spermicides : composition, action, method of use, efficacy, acceptability, etc.	Lectures with identification of the contraceptives used.	Stress the acceptability factor and its motives : influence of other users, publicity, etc., and the fact that the method is independent of the sexual act. Point out that in some climates spermicides deteriorate and thus lose all their efficacy.

2.5.1. *From the point of view of knowledge,* the teaching may cover the following aspects :

a) population dynamics (evolution of the population and repercussions on welfare) :

- demographic trends : e.g. annual growth rate ; age structure (proportion of children under 15 years, proportion of people between 15 and 59 years, proportion aged 60 and over, average age, ratio of the dependent population to the population of working age) ; ratio of men to women ; proportion of persons of reproductive age ; life expectation at birth, at 20 years, at 60 years ; average number of children born to women by the age of 50 ; average birth and death rates ; and patterns of emigration, immigration, and internal migration ;
- rate of demographic transition from wastefully high death and birth rates to a more efficient and humane reproduction with lower birth and death rates ; and variations within regions and countries ;
- interrelationships between population growth, population control, family planning, and fertility, and the effect of these on the wellbeing of the population : e.g. economic, social, and political effects ; consequences for education, for the health and welfare of the population generally, and for the physical and mental development of children ; and the effects on the environment ;
- policies that either promote or impede the growth of populations.

b) community factors, attitudes, and practices :

- prevailing sex norms among variously defined groups, e.g. adolescents, unmarried men and women, and the economically advantaged and disadvantaged ;
- current and changing religious, legal, social, cultural, and/or economic concepts as they concern family planning practices, child spacing and family size, sex education, human sexuality, unmarried parents and their children, abortion, childrearing, health care, male and female responsibilities, and marriage and divorce (i.e. age at marriage, arranged marriages, rights of women with regard to marriage and divorce, etc.) ;
- other factors affecting the practice of family planning, such as geography, literacy level, etc.

c) family organization in the context of other social institutions :

- differences in the form of the family, e.g. nuclear and extended ;
- rôle of the family as an agent in the aetiology of disease, i.e. as a system of interacting personalities who create either a calm or a stressful environment that renders its members either fit or unfit to resist disease, and as an intervening variable that passes on a culture conducive either to goor or to poor living circumstances ; and rôle of the family as a unit in health care, i.e. as a repository of culture capable of mediating the access of family members to such health care as exists ;
- rôle of the family in the care, socialization, and training of children, in the care of the aged, and in economic productivity ;
- internal organization of the family as regards the status of generations (the young and the elderly), the status of male vis-à-vis female members, and the lines of authority and responsibility ; and the relationship of these factors to the socio-economic status and the level of education that each member of the family possesses ;
- life-cycle of the family : birth, childhood, adolescence, courtship and

mating behaviour, marriage and other unions, varieties of conjugal rules, etc. ;

- interactions between the family and other social institutions, e.g. effects of economic and social change on the family in terms of occupational opportunity, access to education, availability of social services, etc., and effects of changes in family form, size, composition, and rôles on other institutions in the society.

d) Epidemiological characteristics of infant and maternal mortality and morbidity : assumptions concerning their effect on fertility and their implications for family planning ; and identification of high-risk groups.

e) indications for family planning : demographic, social, economic, health, and genetic.

f) resources :

- health agencies : extent and capacity of maternal and child health and basic health services ;
- community agencies, institutions, and organizations offering family planning services : their policies and practices, and the coordination and referral system ;
- sources of financial aid for individuals, families, communities, and programmes ;
- sources of family planning information : books, pamphlets, audio-visual material, whether locally prepared or from foreign cultures, as well as the language in which they are available;
- relevant legislation concerning available funding and restrictions on practice ;
- human resources and the rôle of each category of professional, auxiliary and lay personnel, with emphasis on nursing and midwifery personnel, in the recruitment of users, in their care, and in their education as well as in help and guidance to young people (see also «The rôle of midwives and nurses in family planning», by W.Haddad).

g) methods of family planning and fertility control :

- mode of action, effectiveness, contraindications, advantages, disadvantages, and possible harmful side effects of each method, from those involving periodic abstinence, such as the rhythm method, up to and including tubal ligation and vasectomy ;
- abortion : methods, complications, and the relationship of abortion to family planning ;
- psychological factors associated with the success or failure of the various methods ; the effect of the practices, attitudes, and legislation associated with each method ;
- detection and correction of infertility and subfertility.

h) other knowledge :

- anatomy and physiology of human reproduction ;
- genetics (basic knowledge), and the rôle of nurses and midwives in this field ;
- the terminology, methods of measurement, and indices of programme evaluation.

All these subjects should be taught in the order best suited to individual schools, and introduced as early as possible in the training programme. Emphasis should be laid on the social, biological and medical aspects of the problem, and especially on the reasons which justify family planning ; all information concerning the social environment should be centred on the specific problems of the country. Furthermore, training should stress not only what the nurse or midwife should say, but how she should talk to the users (motivation).

2.5.2. *From the point of view of skills,* the education and training of nurses and midwives, and the teaching of techniques, should include the following skills :

a) communication skills (more especially for those who will functions as general nursing and midwifery practitioners) :

- ability to listen to people ;
- ability to teach (interview, advise, guide), i.e., to enable individuals, groups, and the community to acquire and apply the relevant knowledge they need or demand ;
- ability to prepare and use various media for teaching and learning (audiovisual aids, group discussion, etc.), and ability to operate educational equipment.

b) clinical skills (more especially for those who will function as clinical specialists) :

- ability to recognize patients' problems ;
- ability to take a personal medical history, carry out physical examinations (of the pelvic area and breasts), and make physical evaluations or assessments ;
- ability to take smears for the Papanicolaou test ;
- ability to fit diaphragms ;
- ability to insert, check, and remove intrauterine devices ;
- ability to prescribe oral contraceptives after evaluating the physical and emotional condition of the patient ;
- ability to recognize conditions or reactions requiring the attention of a physician or other specialist.

c) educational skills (mainly for those who will function as educators of health personnel) :

- ability to teach according to modern concepts of teaching and learning, using a combination of methods such as lectures, group discussions, assessment of situations, rôle-playing, case studies, audiovisual aids, programmed instruction, self-instruction, practical work, etc. ;
- ability to construct curricula and develop an integrated content of theory and practice ;
- ability to evaluate teaching and learning in relation to the objectives of the educational programme and in terms of the teaching methods, the content of the syllabus, and the performance of students.

d) administrative skills (mainly for those who will function as administrators and/or supervisors) :

- ability to plan, programme, and evaluate the nursing and midwifery

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component (services, resources, in-service training, etc.) of family planning services ;

- ability to supervise, counsel, guide, and support staff and students and to interpret their needs ;
- ability to promote the leadership skills of staff and of students undergoing practical training ;
- ability to plan, organize, manage and evaluate the nursing/midwifery component of a hospital ward, a clinic, or a community service;
- ability to recognize problems, arrive at decisions based on a critical assessment of the situation, initiate a course of action (with or without the help of others), and evaluate one's own performance ;
- ability to record information, use data, and make comprehensive and comprehensible reports ;
- ability to coordinate the nursing and midwifery component with other services ;
- ability to cooperate with others and to help staff to develop and advance professionally.

e) research skills, or the ability to apply technical methods and scientific instruments to problems concerned with training or practice aspects of family planning - an important attitude for research workers :

- ability to design and carry out research projects ;
- ability to solicit or otherwise collect and record information and data systematically, faithfully, and completely ;
- ability to identify specific relevant information and evaluate its accuracy ;
- ability to assist a research worker in contacting clients and in interpreting data.

2.5.3. *From the point of view of attitudes,* the sensitivity and understanding of the students should be developed, so as to enable them to :

- consider people as individuals with specific physiological, psychological and social needs ;
- know how to behave in certain situations which require sympathetic perception and tactful handling, such as poverty, illegitimacy, premarital and extramarital sexual situations, sexual problems of adolescents, sexual aberrations, ignorance, drug abuse, abortion, contraception, etc. ;
- be aware of their own feelings and reactions with regard to sex life and family planning methods when they are giving advice to others ;
- consider family planning as a measure for the promotion of health ;
- be aware of their own strengths and limitations.

2.6. - *Teaching methods* -

In order to achieve the best possible conditions of study, it is important to :

- choose the teaching method which is best suited to the ability of the teacher, the subject being studied, and the characteristics of the class ;
- make the teaching dynamic, so that it arouses an active attitude, reflection

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and judgment ; that is, it should be planned with a view to giving the students the greatest possible opportunity of participating in their own training, rather than being present solely to listen, record, take notes, and keep quiet.

The only knowledge that can really influence the behaviour of an individual is that which one discovers for oneself and which one adopts oneself. The students must feel that their education belongs to them and that they are there to contribute to it ; for this reason the tutor must avoid providing them with the result, the solution, the summary and the conclusion. This implies a great deal of humility on the part of the tutor, who from time to time must have the courage to keep quiet - which is not always easy - and get down from her pedestal to live with the class and make the class live, in order to show the students where her own competence ends. It is on this condition that the students will learn to seek to acquire further knowledge, to progress, and to open out.

TEACHING APPROACHES

Talk to students
Talk with students
Have them talk together
Show students how
Supervise them
Give them practice

Source : WHO Offset Publication no 35

In fact, a cooperative method of teaching should be used, in which the aim is not experienced and thought out solely by the tutor but is also shared by the students.

In a teaching situation, there is the tutor, there is the group of students, and there is everything which goes on among the students, and between the students and the tutor, that is, the emotional or psychological atmosphere from which no one can escape, and which conditions the teaching and learning attitudes adopted during the life of the group (group dynamics). Learning does not only depend on the knowledge and skill of the tutor, or on the value of the programme, but also on the quality of the attitudes which exist in the personal relationships between tutor and student, and these must be real, genuine, and deep-seated.

CONDITIONS to facilitate LEARNING →

. . . AN
ATMOSPHERE
WHICH

- encourages people to be ACTIVE
- emphasizes the PERSONAL nature of learning
- accepts that DIFFERENCE is desirable
- recognizes people's RIGHT to make mistakes
- tolerates IMPERFECTION
- encourages OPENNESS of SELF and TRUST in SELF
- makes people feel RESPECTED and ACCEPTED
- facilitates DISCOVERY
- puts emphasis on SELF EVALUATION in COOPERATION
- permits CONFRONTATION

G.P. Pine & P.J. Horne, Principles and Conditions for Learning
in Adult Education – Adult Leadership. Oct. 69

Methods applicable to the teaching of family planning are the same as those commonly used in other disciplines in nursing and midwifery schools. They consist of the following :

2.6.1. *Lectures.* Certain parts of the teaching (demography, for example) are dealt with during the lectures. This makes it possible to communicate information which can be used as a basis for discussion.

2.6.2. *Written questionnaires.* These cover the most important points raised during the theoretical course, and help to discover points which require further elaboration.

2.6.3. *Discussions between teacher and student.* These will form the basis for orienting the students, since they will help them to express their feelings and their main interests, thus helping the teacher to understand the students better and adapt the teaching to their needs.

2.6.4. *Discussions on cases.* These cases, which are presented by students of several disciplines under the direction of an interdisciplinary team of teachers, will enable each member of the group to express her ideas, ask questions, and give her opinion on the case under study. In this way students will see their discipline as part of a global programme, and will learn to make use of other disciplines for the benefit of the people they are caring for.

2.6.5. *Independent study projects* (case, family, or community studies) provide experience in scientific analysis and in problem-solving, and at the same time provide opportunities for contact with individuals and groups requiring counsel and/or referral.

2.6.6. *Programmed instructions* allow students to proceed at their own pace and to acquire knowledge in a logical sequence.

2.6.7. *Audiovisual aids* provide students with a variety of educational experiences that may not be obtainable through other methods. They are, moreover, economical in terms of teacher time.

2.6.8. *Demonstrations* give the teacher and the learner an opportunity to put theory into practice, and they help students to develop manual dexterity.

2.6.9. *Oral and written reports* enhance the student's skills in analysing, writing, and speaking.

2.6.10. *Self-teaching and learning,* particularly with the help of literature on specialized subjects, broaden the student's perspective and understanding and help to develop the habit of reading, which is so necessary to individual growth. Reviews of literature, through student presentation and discussion, help to increase students' perception and provide an incentive for keeping abreast of trends.

2.6.11. *Documentary visits* - visits to institutions and organizations, to observe and understand the nature of the programme - help students to assess family planning problems and to learn how such organizations respond to them. Such visits are followed by discussions in order to enable the trainees to go over whatever important aspects they gained from them as compared with documents studied in class. As a general rule, these visits should correspond to the programmes and concepts dealt with in the theoretical teaching.

The importance of the following methods should also be mentioned :

2.6.12. *Rôle-playing and the simulation of typical situations* in the hospital, the home, the community, or the clinic provide a practical test of the ability of students to perform the work for which they are being prepared. An analysis of the experience allows the learner to formulate general principles applicable to the real situation.

2.6.13. *Classroom discussions* enable students to develop skills in critical analysis, self-expression, and decision-making, and also enable the teacher to evaluate the students' level of understanding. The teacher's rôle is that of guiding the discussion and helping students to clarify their ideas and to seek evidence to support them.

In the field of family planning, such discussions are extremely important because they enable the students to develop their sense of social and emotional maturity whenever values and attitudes come up for discussion. A sceptical or negative attitude on the part of a nurse or midwife towards birth regulation may also have a negative effect on the patient's attitude.

2.6.14. *Clinical training and field experience,* which may take place anywhere where there are family planning services (in maternities, gynaecological services, hospitals, dispensaries, family planning clinics, maternal and child health centres, in the home, at school, or as part of community activities), help students to apply their knowledge, skills and ideas to real-life situations.

Observation and practice are two important aspects of the experience gained during practical training. With regard to observation, the students may take turns in visiting the various establishments or institutions which provide family planning services, and sit in on motivation sessions and follow-up visits, following closely the activities of the medical, nursing and midwifery staff in a clinical environment. As far as possible they should then carry out for themselves, under supervision, the work they have observed, whether it be to give a course for mothers, insert an intrauterine device, bring a file up-to-date, write a report, or teach auxiliaries.

In the selection of practical experience it is important to bear in mind the following principles :

- the trainee learns what she experiences for herself ;
- the trainee learns when her interest is held, when she has serious reasons for studying, when she gets satisfaction from studying, and when she likes her tutor ;
- the trainee really learns when what she is studying meets her needs and is connected with what she already knows ;
- the trainee learns when practical work corresponds with her ability, is at her level, and can be carried out at her own speed taking into account her individual way of learning. Practical experience enables trainees to learn, to do things themselves, and to take in observations and actions, but above all it helps them to feel, understand, and

establish relationships with others : «You can only see properly with the heart», as the fox said to Saint-Exupéry's Little Prince.

Thorough knowledge of an environment cannot be found in books ; it comes through warm and sincere human contact which is entirely devoid of prejudice.

- courses, lectures, and books only teach «things»; their aim is to develop «knowledge» ;
- in the demonstration room the aim is to develop «know-how», that is, apply techniques effectively and safely ;
- only through practical training can the student «get in touch with» the patient, who is a human being before being a patient.

The hardest and most important part of the tutor's rôle is to help students to establish this contact with others. It is obviously not enough to feel and understand ; action is also needed, but this can only come afterwards and as a result of feeling and understanding. Relationships do not exist only at the inter-personal level ; they go beyond the relationship of one individual to another and become group relationships, and practical work gives students the opportunity to become part of a team.

2.6.15. *Home-visiting* provides students with the best opportunity to establish individual contacts and gain an overall impression of a family, to identify its problems and difficulties and the factors which militate for or against family planning, and thus to provide appropriate educational advice. Furthermore, these visits also give opportunities for getting to know the husbands, which is most valuable in view of the hostility of some men to contraception. (See : «The Technique of Home-Visiting», by W. Haddad).

In order to achieve the aims of the practical training, the means to be used are partly a question of organization, as follows :

- define the school's objectives in sending students for practical training ;
- define the experience that the student must be given during her practical training ;
- define the nature of the practical training, its duration, time-table, rotation of trainees, and the number of students to be assigned to the various services ;
- select the areas for field training which are best suited to real participation in the students' training ;
- brief the heads of services or the local authorities in the district where the training is to take place ;
- define the duties of the staff who are to be responsible for the students' training ;
- ensure that the field staff participate in the students' training ;
- prepare the students for their field training ;
- place the students in their field training areas ;
- undertake their evaluation.

2.7. - Evaluation of teaching -

The chief aim of the educational process is to facilitate changes in behaviour. The kinds of changes that an institution attempts to bring about in students'behaviour constitute its educational objectives.

Evaluation consists of determining in how far each for the objectives has been achieved, and of assessing the quality of the teaching techniques and the teaching staff with a view to improving or modifying the teaching/learning programme. Thus :

2.7.1. *from the point of view of the student,* evaluation is necessary to help her find out :

- whether she is learning thoroughly what she has to learn ;
- why she is not learning better ;
- in which subjects she is good and in which poor ;
- how she can be helped to progress.

Evaluation also helps to encourage a student who works well to persevere.

The student must also take part in evaluation herself. She must be told the results so that she can use them as a basis for further progress. The object is to help her and not to pass judgment on her.

2.7.2. *from the point of view of the teacher,* evaluation is the best means of finding out the results of one's work. It is helpful to the students to react to their learning effort. Students' learning is often poor because they are not stimulated by their teachers.

2.7.3. *from the point of view of the training programme,* evaluation helps to find out whether the objectives of the teaching programme have been met, that is, whether a student at the end of her training is capable of doing what was set out in the programme. Evaluation also indicates items in the programme which need to be improved. For instance, if it is found that a student is unable to teach village mothers adequately what she has learnt about infant and child feeding, perhaps because the mothers do not believe in the value of certain foods for children, it will be necessary to discover the existing taboos and give greater emphasis in the syllabus to the study of taboos and customs.

Evaluation is a continuing process which begins on the day training starts with a precise definition of the aims of the course and of the minimum performance required of the students, and which continues throughout the course's duration, when it ends, and after it is completed. There is a continuous relationship between objective and evaluation.

RELATIONSHIP BETWEEN A COURSE'S OBJECTIVE AND ITS EVALUATION
(e.g. IUD insertion)

OBJECTIVE	COURSE CONTENT	EVALUATION	EXPECTED BEHAVIOUR
To be able to insert an IUD	**Theoretical** Lectures on : - Anatomy/physiology - Asepsis - The various types of IUDs - Indications, contraindications, incidents and accidents - Patient management **Practical** - Demonstration of technique for insertion, supervision, technique for removal - Clinical training	**Direct** Observation of practical performance. **Indirect** Audiovisual aids : - Film with inbuilt errors - Multiple-choice questions - etc.	**Knowledge** To be able to use her knowledge to understand the principles governing IUD insertion **Manual skills** To be able to : - insert an IUD - explain the side-effects and possible accidents - remove an IUD **Attitude** To be able to adopt a « professional » attitude towards the patient.

↑ FEED-BACK ↑

2.7.4. *Methods of measurement.* Evaluation involves several methods of measurement which must satisfy the criteria of objectivity, validity, reliability, relevance, and practicability.

a) Objectivity is the degree of concordance between judgments made by independent and competent examiners on what constitutes a good reply for each of the elements of an instrument of measurement. However, this method of measurement is influenced and may be distorted by several factors. To obtain the required objectivity, multiple-choice questions or a guide-line for correction may be used, for instance, as shown in the two models below.

OBJECTIVITY

Multiple-choice question

Example : What are the 6 most common side-effects of oral contraceptives ?

(Check one or more of the following :)

1. Nausea
2. Generalized pruritus
3. Intermittent bleeding
4. Amenorrhoea
5. Loss of weight
6. Increase in weight
7. Pains in the joints
8. Sinusitis
9. Swollen and painful breasts
10. Circulatory disorders such as «heavy legs»
11. Gastralgia

(Correct answers : 1 - 3 - 4 - 6 - 9 - 10)

OBJECTIVITY

Guide-line for correction

(Example)

Grading : 5/5 points
Pass level : 3/5 points

QUESTION	ANSWERS EXPECTED	GRADING
Say in what cases it becomes necessary to change the size of a diaphragm.	- After a delivery	1 1/2
	- After a miscarriage	1/2
	- After an operation on the lower genital tracts	1 1/2
	- During reproductive life	1 1/2
	Total :	5 points

b) Validity is the degree of precision with which the instrument measures what it aims at measuring. Example :

VALIDITY

Course on contraception

Question : What are the contraindications to insertion of an IUD ?

Time : 20 minutes
Grading : 3 points

c) Reliability is the constancy with which an instrument measures a given variable. Example :

RELIABILITY

A test repeated several times on the same group of students under identical conditions gave the following results :

Marks obtained in the 1st test : 8/10 points
Marks obtained in the 2nd test : 7/10 points
Marks obtained in the 3rd test : 8/10 points

In fact, however, it may be impaired by a number of factors, such as, for instance, the conditions in which the test is held (which are not always identical), the candidate's state of health, the tutor's attitude towards individual students, his or her preference for a given subject, or sampling errors, etc. A question of luck is also involved: those who know nothing about the subject may have a stroke of good fortune. Example :

In a «multiple-choice question» test given twice over in identical conditions, the following results were obtained :

Student X who had studied the subject	*Student Y who had not studied the subject at all*
Marks obtained in the 1st test : 8/10	Marks obtained in the 1st test : 4/10
Marks obtained in the 2nd test : 7/10	Marks obtained in the 2nd test : 7/10

d) Relevance is the degree of respect of the criteria established in the selection of questions if they are to conform to the aims of the instrument of measurement.

e) Practicability is determined by the time required for construction, administration, marking, and interpretation of results, as well as by the overall simplicity in use of the method.

If the objective of the course is to bring about changes in the student, by helping her to acquire intellectual skills (the cognitive field), manual skills (the psychomotor field), and a particular pattern of behaviour (the affective field), such changes may be evaluated as follows :

- in the cognitive field : written and oral questions, note-taking, reports on field experience, and possibly psychological tests, etc. ;
- in the psychomotor field : observation of the student in the demonstration room and during practical training, comments on her practical work by the other

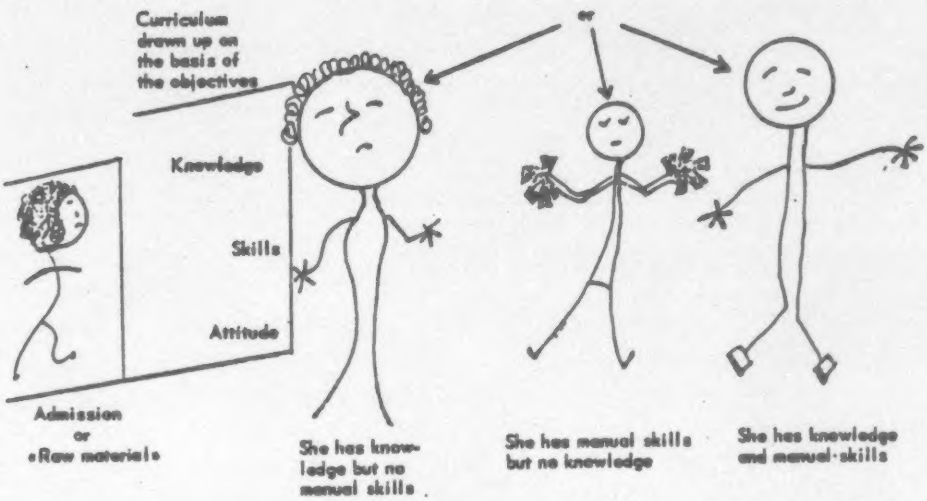
students, discussion between the tutor and field supervisory staff, etc. ;

- in the affective field : observation of individual and collective behaviour, group discussions, and communication, discussion, and relations between tutor and student, etc.

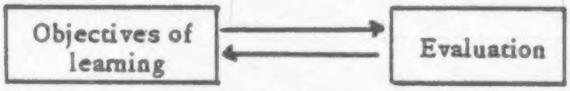
2.7.5. *Utilization of the results of evaluation.* When a student passes an examination, it is possible to determine whether :

- she has the knowledge but is not capable of taking action ;
- she has not the knowledge but is capable of taking action.

OUTCOME OF TEACHING
(the end-product)


Curriculum drawn up on the basis of the objectives
or
Knowledge
Skills
Attitude
Admission or «Raw material»
She has knowledge but no manual skills
She has manual skills but no knowledge
She has knowledge and manual skills

The teaching aims at producing a person who knows what it is important to know about the task to which she will be assigned, and who is capable of carrying out this task. Consequently, the evaluation results must be compared with the learning objectives to see whether the student has learnt thoroughly everything that she was supposed to learn. If this is not the case, weak points will need to be strengthened.


Objectives of learning
Evaluation

- In the case of a student who does not know all she should know about a task, but is however capable of accomplishing it manually - for instance, she is very good at weighing a baby, but does not know the danger of loss of weight, or the way to teach a mother how to feed her baby - more time will have to be given to this student to help her understand this danger and the way to teach the mother.
- In the case of a student who possesses the knowledge, and is capable of answering questions and instructing others properly, but cannot manage to carry out correctly important tasks such as insertion of an IUD, she must be helped to overcome this

shortcoming, and will need to do more practical work.

If the teaching has not resulted in enabling the majority of the students to achieve the desired end behaviour, it will be necessary to go back to the objective and make requisite corrections to the course content in order to achieve the objective that had been set. Students must be aware from the start of the rules and criteria of evaluation, and should be informed of its results in relative and absolute terms. Their comments, reactions, and opinions on the teaching they have been given and on their own experience should also be taken into account. Finally, evaluation should continue once students have qualified and started work in order to find out what problems they have encountered for which they were not adequately prepared. Provision should be made a feed-back mechanism which will enable the necessary corrections to be introduced. Family planning is such a rapidly changing field that emphasis must be placed on providing the best possible teachers and teaching programmes.

To sum up, the evaluation process provides the basis for a value judgment which enables sound decisions to be made on the whole educational process.

3 - *In-service training* -

« Today's knowledge becomes tomorrow's incompetence ».

The idea that man must go on learning throughout his life is not a new one. Goethe wrote in the eighteenth century : « Our ancestors could satisfy themselves with the education they received in their youth. As for us, we must start studying again every five years if we are not to get out-of-date ».

In view of the speed with which family planning programmes have developed in some countries, where they have outstripped the professional training of staff capable of providing this type of service, it would seem logical to plan for the following remedial action at once while waiting for new staff to be trained in this field :

a) retraining, in the form of intensive additional courses for teaching and operational staff already working in family planning programmes without previous training, beginning with key personnel, to help them make a greater contribution in this new field of activity ;

b) initiation of all staff in family planning programmes ;

c) the introduction of a system of continuous in-service refresher training, in order to keep staff up-to-date with changes and progress in this field, and to prevent them from being content with what they already know and thus settling down comfortably in a way which is contrary to a true educational attitude.

Such refresher training should be given during working hours, and should be a response to problems actually encountered ; consequently, the methodological approach should be based on a thorough knowledge of local living and working conditions, an understanding of the main objectives of the environment concerned and the people of whom it is made up, the identification of the problems to be solved before these objectives can be attained, and, finally, the working out of solutions which will then need to be translated into work programmes and be made the subject of teaching.

The technology for this «tailored» refresher training will need to cover the following aspects :

- it must use adult teaching methods in which the emphasis lies not in the subjects to be taught but in a change in attitudes. Its focal point will therefore be the trainee rather than the trainer ;
- it must change the rôle of the trainer, who will need to analyse the content of programmes, bring them up-to-date, and transform them into aids to self-instruction ;
- it must provide for feed-back, and encourage the participation of the trainees in the planning, organization, and carrying out of the teaching.

Apart from formal in-service training programmes, the staff will find the opportunity for refresher-training in meeting with their supervisors, and in workshops, seminars or lectures on family planning and related subjects. Everything possible should be done to encourage and facilitate the active participation of all workers, from the lowest to the highest levels of staff.

In-service refresher training extends the educational activities of supervisory staff ; these educational activities must be carried out through constant individual contact with the staff for whom they are responsible, and every opportunity must be taken to improve the work.

4 - *Summary and conclusions* -

The following points emerge from the above considerations :

4.1. - In cases where it is accepted that family planning is an integral part of the health services, nurses and midwives must be given appropriate training in this subject.

4.2. - In working out a training programme, three different stages should logically be followed :

4.2.1. Setting objectives which correspond to the behaviour that it is hoped the student will acquire at the end of her training so that she may carry out her future functions as effectively as possible.

4.2.2. Finding methods of training which will enable the student to attain such objectives as far as is considered necessary by the teaching staff.

4.2.3. Preparing and putting into operation an evaluation programme which will make it possible to determine in how far the student has attained the objectives as originally set. Analysis and interpretation of data on the student's performance at the end of her training will inevitably lead the teaching staff to re-examine and modify the original objectives to take into account experience that they and the students may have gained during the training period.

The final objective of evaluation is that the teaching and training should develop the potential of each individual to the utmost ; furthermore, each individual should be aware of her own qualities and weaknesses, wish to make the best possible use of the former and overcome the latter, and be ready to go back to the beginning and make a fresh start.

4.3. - However well prepared they may be, nurses and midwives can never be considered as «finished products». Consequently, it is essential to organize orientation programmes and in-service refresher training for them so that they may offer their clientèle a first-rate family planning service.

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THE TECHNIQUE OF HOME-VISITING

(A survey)

W. HADDAD

Home-visiting is the basis of any public health activity. It consists :

- either of obtaining as much information as possible on the medical, material, physical, moral and social position of an individual or a family, with a view to taking useful action ;

- or of managing to transfer the dispensary's activities into the home situation, giving emphasis to activities which at a given time meet the needs of individuals or their families most closely.

1 - *Aim of a home-visit* -

Its purpose is to make friendly contact with a family in order to collect information needed for a particular study (such as sanitary conditions, budget, slums, nutrition, etc.) with a view to discovering the best and most suitable solution to meet the situation.

Making contact in this way is useful in all preventive work. It is not an aim in itself, but a means to an end. It is not a study for the sake of making a study, but a study in order to take action.

2 - *Objections to home-visiting* -

- Intrusion.
- Indiscretion.

Making contact in this way may indeed appear to be indiscret and disrespectful towards those who are the object of it, for no-one is entitled to interfere in individuals' private lives or try to obtain from them information that they may have no wish to give. If it is done with the idea of real help to others, however, it cannot be bad and is not lacking in respect for people's freedom or their sense of dignity.

3 - *Procedure to be followed in making a home-visit : five stages* -

3.1. - *First stage : first of all prepare for the visit* -

All the information that is available on the family (there may already be a file on the family) should be collected, studied, and analysed.

The object of the visit should be thought out carefully, as well as the questions that can be asked.

3.2 - *Second stage : the visit itself* -

All necessary precautions must be taken to ensure that the study is made satisfactorily.

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3.2.1. *Entering the house.* When the auxiliary or nurse goes into a home, she must not forget that in the hospital or the dispensary the patient is the guest and that she is the hostess, but that in the home she is the guest and the people being visited are the hosts. The method of approach is therefore quite different. The first impression is important : the whole personality of the auxiliary or nurse will be summed up, and she must therefore have an orderly appearance and wear a uniform or very simple clothes.

3.2.2. *Explaining the purpose of the visit.* Why has she come ? (general hygiene, a systematic epidemiological or social survey...., maternal and child health).

3.2.3. *What must be observed* : the general look of the home, how it is kept, what kind it is : comfortable, decent, simple, a slum or semi slum. The number of rooms, the number of people to a room, the sanitary conditions in the dwelling : whether there is running water, and if not, where and how it is kept ; whether the toilets are individual or collective; whether food is protected from flies ; where household refuse and waste water are got rid of.

The questions that need to be asked. During a friendly conversation, the following information should be collected :

a) where the family comes from : whether they have lived in the area for a long time ; if not, where they come from, and what their reasons are for being there ;

b) composition of the family : parents, children, other persons living under the same roof, ages, professions. If there are children, what they do; where they go to school ; whether they work anywhere;

c) material situation : what the family's resources are ; if the parents are unemployed, how the family manages to meet its needs ; whether it has heavy expenses ; what its standard of living is ;

d) present state of health, family antecedents ;

e) what the family's problems and needs are.

All the information mentioned above must be obtained gradually, in the course of conversation. We must always try to gain people's confidence : they cannot be forced to confide in us, it would be a breach of their freedom. The tact and skill with which an auxiliary or nurse can lead someone whom she wishes to question to give her the information required will be decisive for the value of the relationship which will later be established between them. An auxiliary or nurse must always adapt herself to others, and be in a state of acceptance to each individual, whether rich or poor, educated or ignorant.

If direct questions must be asked in order to obtain precise information, it should be explained why this information is needed and to what use it will be put. Information must only be of interest to an auxiliary or nurse as far as it can help her to a better understanding of the situation and thus to being of more effective help. Questions should not be asked out of curiosity, which would be an intrusion on others, but should on the contrary arise from people's need to free themselves from something they cannot manage to express spontaneously.

It is also important to be able to distinguish what is « said » from what really « exists ».

An auxiliary or nurse must know how to use her memory, and thus avoid writing anything down. However, there may be information which must be noted exactly as it is given, such as dates, numbers, and addresses ; in such cases, it should be explained to the people being questioned what is being written down and why : this will help them to give better answers and will lessen their unwillingness to reply.

Finally, it must be remembered that information given in confidence must never be passed on, except to those who need to know it in their professional capacity in the interests of the work.

3.3. - *Third stage : action to be accomplished* -

The tasks to be accomplished are many and various :

- explanation of a diet (diabetic, for instance) to a patient, and helping him or her to understand the importance of personal hygiene and of the essential points to be observed ;
- teaching the prevention of disease and measures to be taken : the need for isolation, for staying away from school, for disinfection of the patient's belongings. In some cases, helping the family to carry out this disinfection. Ensuring that the importance of primary vaccination against smallpox is fully understood, as well as the benefits of immunization in general. If need be, reassuring the family ;
- continuation of educational activities started during a clinic visit ;
- locating contagious diseases and referring patients to dispensaries ;
- health and social education of the population with regard to personal hygiene and housing ;
- giving advice on health matters to future mothers and members of the family in connexion with a baby : its diet, appetite, frequency and appearance of stools, sleep, etc. Showing a mother how to keep her baby clean, bathe it, ant put its napkins on. Helping her to prepare and give a bottle if the infant is being fed artificially. Giving appropriate advice on the amount, dilution, and boiling of the milk, sterilization of the bottle and teats, protection from insects and dust, and washing of the mother's hands before handling anything to do with the baby ;
- explaining to a mother who is not inclined to breast-feed her baby the personal benefits she can derive from feeding her infant herself ;
- explaining to a mother that high parity and short intervals between births carry risks both for herself and for the child, and that this is why birth-spacing is important ; informing a couple on methods of birth regulation, and helping them to apply the contraceptive method of their choice if they so wish ;
- complementing practical advice with on-the-spot demonstrations, in the family's own living conditions, taking their needs and their opinion into consideration ;
- giving advice to elderly people who are sick, chronically ill or bedridden, with regard to their living conditions, feeding, and the problem of bed-sores ;
- asking for cooperation in tasks of social prevention and in control of social diseases (child mortality, eye diseases, nutritional diseases, tuberculosis, venereal diseases, malaria, etc.) ;
- giving any necessary information asked for by the family ;
- early case-finding of diseases or handicaps in the patient's home, at school, in places of work, etc., and referring them to appropriate centres for care or assistance. Such cases should be reported to the social worker responsible for the area ;

- contributing to surveys with an overall coverage requested by the authorities in order to enlighten them on patients' environment, living conditions, real needs, deficiencies, antecedents, etc., with a view to establishing health or population statistics.

3.4. - *Fourth stage : analysis of the survey* -

In order to analyse a visit, it is necessary to :

a) reclassify the information first of all (eliminating what is not true), summarize it, and arrange it in accordance with the problems to be solved.

Which are the sanitation or health problems of the family which seem to be in most urgent need of study ?

How does the family see these problems, and what are its own plans for the future to remedy them ?

What will be the work of the auxiliary or nurse ?

Is there a hope of improving the situation ? Immediately ? In the future ? How can this be done ?

b) then assess the work and the results achieved. The true value of this analysis lies not so much in assessing the content of a situation as in determining its cause. For instance, if a pregnant woman has paid frequent visits to the dispensary, was it because she could obtain a layette free of charge, or because she appreciated the advice she was given on health matters ?

3.5. - *Fifth stage : writing up the survey* -

A report on a survey (outline given below) is necessary in order to depict the person or the family and their circumstances, particularly their housing conditions, their family situation, their health, their material welfare, their attitudes and their reactions, etc.

Such a report must indicate what problems were encountered. For instance: a couple who have given up contraception, women who have repeated abortions, a malnourished child, what has been done, and what remains to be done. In other words, the plan of action that the auxiliary or the nurse-midwife is going to try and carry out.

It is best to write up the survey report shortly after the visit has been made. If it is put off, impressions become vague and there is a risk of interpreting them less accurately.

4 - *Types of home-visits* -

Home-visits may be of two kinds :

a) systematic - e.g. recording of the families in an area ;

b) motivated - nursing activities : e.g. tuberculosis case-finding, epidemiological surveys, specific care, birth certification, etc.
- social activities : carried out by the social worker.

There are various types of survey reports for these different activities, but the basic technique remains the same for all types of visits. The only differences are in the specific information to be collected, and the action to be undertaken.

It should never be forgotten that the best help is that which helps others to help themselves.

5 - *Outline for a general survey* -

Name of father .... First names ....

Date of birth .... Profession ....

Name of mother .... First names ....

Date of birth .... Profession ....

Composition of the family :

Children	First names	Age	Observations
1			
2			
3			
4			
5			
etc.			

Other persons living under the same roof :

Housing - number of rooms :
- upkeep :
- sanitation of the dwelling, etc.

Material situation :
- a) resources : father's earnings
  - mother's earnings
  - children's earnings
  - various allowances
- b) expenditure on : food
  - rent
  - clothing
  - water, electricity, heating
  - children's schooling
  - health matters
  - entertainment
- c) average budget per day and per person :

This part is only filled in exceptionally for certain special surveys

Nutrition :

Problems encountered and needs expressed :

Suggestions and solutions found for problems :

Observations :

Date :

Signature :

TRAINING OF THE MEDICAL PROFESSION IN FAMILY PLANNING

J. COHEN

Whether it be considered for better or for worse, the medical profession has primary responsibility in family planning : prescribing, advising on, supervising, stopping, changing, and passing judgment on contraception. And yet this body, whose rôle is so important, has received and continues to receive none of the education and training required to enable it to undertake these responsibilities. I shall attempt to review very briefly the present state of the teaching of contraception and what it should be in the future.

1 - *Present status* -

The need for contraception is as old as the world ; but effective and scientific contraception is recent. Mechanical methods (diaphragm, jelly, male preservatives) were developed before the 1939-45 War, particularly in Anglo-Saxon countries. The synthesis of synthetic progestatives, and the advent of plastic materials enabled a few pioneers who believed in family planning to reveal modern methods and then make them widely known. This coincided with a major need of people and resulted in an extraordinary « consumption » of contraceptive methods : about 25 per cent of women of childbearing age take the pill, and some 2-5 per cent use an IUD (intra-uterine device), without counting other methods. And yet this extraordinary revolution has taken place outside the « official » structures, in militant movements led for the most part by progressive physicians, and without the participation of the « medical authorities ». This seems to me to be due, firstly, to the fact that contraception goes against medical tradition (save life, save the child, fight abortion). « Medical officials » (professors, professional representatives) thus kept out of the movement originally, and have continued to be behind the times even if they have since changed their minds. It also seems to be due to the fact that gynaecologists and the medical professions as a whole, even when they have become convinced of the advantages of contraception, have always considered it as « sub-medicine ». Even nowadays it is considered less worthwhile to prescribe a pill than to cure a case of cancer or sterility. Physicians have not yet understood that family planning is part of public health. This can probably be explained to some extent by the fact that while the medical profession accepts being faced with suffering, it is not yet prepared to be faced with pleasure.

The first attempts to teach family planning in France were made through the medical membership of the French Movement for Family Planning ; the physicians who first founded the Movement passed their experience on to their colleagues by improvised and precarious means, and completely voluntarily. This went on for years, and finally « snowballed » into the publication of a medical journal (Fertilité-Orthogénie, followed by Contraception-Fertilité-Sexualité), and the establishment of IFRES (Institut de Formation de Recherches et d'Etudes sur la Sexualité et la Planification familiale - Institute for Training, Research and Studies on Sexuality and Family Planning).

In 1973, especially under pressure from the movement to liberalize abortion, the authorities became aware of the need to train the medical profession. In the same year a fifteen-hour training course for midwives was introduced by decree of 23 May. In January 1975, an official circular brought in the « sensitization » of future general practitioners by advising basic training in birth control and sexology in the programme of clinical studies in medicine («2nd cycle»). At the same time, students for the Certificate of Special Studies in Gynaecology were given the choice of spending a six-months' training period in a Family Planning Centre.

In 1977, however, this training is still of minor importance :

- midwives learn the theory without ever being faced with real-life situations ;
- general practitioners have had a maximum of one to three hours' training in contraception during their studies (whereas in their practice a quarter of their female patient will ask them to prescribe contraceptives) ;
- specialists are more concerned with pathology during their studies. Until recently, only very few had done any training in family planning.

The real training continues to be given outside the official sources of education :

- in the courses given for students by IFRES ;
- in post-university sessions, in the annual congress of Contraception-Fertilité-Sexualité, or in the short courses given by the School of Public Health in Rennes for practising physicians.

All this undoubtedly leads to insufficient knowledge on contraception by a section of the medical profession, and results in certain physicians passing on false or erroneous concepts which antagonize the public, or giving unsuitable prescriptions which lead to complications or failure. Furthermore, the ghetto in which family planning is maintained discourages those who might have a vocation for it, and perpetuates the passive attitude of the medical profession.

2 - *In the future* -

Let us rapidly enumerate a few, far from exhaustive, suggestions for improving the present state of affairs :

a) Basic training in family planning and sexuality should be thoroughly integrated in all medical and paramedical training programmes. This requires :

- an explanation to future physicians on how family planning fits into the general framework of health protection ;
- giving a clear idea of the rôle of the physician in advice and choice in the field of contraception, and of happy and voluntary motherhood ;
- helping future physicians to understand the influence of their own concept of sexuality on the advice they will give, and the need for a knowledge of the psychological problems underlying family planning ;
- including in the training a discussion of problems of demography (factors influencing the birth-rate), legislation (medical responsibility), and economics (cost of contraception, abortion, etc.).

Modern teaching techniques, more especially through the use of audio-visual methods, make it possible to present this teaching attractively, and to overcome the difficulty of having a large number of students present at clinic sessions on contraception or sexology.

Students feel strongly the need to be initiated in technical, racial, psycho-social and demographic factors, and welcome such teaching when it is well done.

Experience in other countries shows the advantages of such attitudes. For instance, at Mount Sinaï Hospital teaching is spread over a period of four years :

- in the first year, an introductory course of five two-hour lessons on the psychological, social and anthropological aspects of reproduction (the subjects dealt with cover contraception, sterilization, abortion, and family problems). A training session on family planning is open to all students during the summer ;
- a module of reproductive physiology and sociology is offered among the subjects from which the student is allowed to choose (eight two-hour sessions : physiological determinants of sexuality, psychological determinants of sexuality, physiology of the sexual act, sexual habits and taboos, and sex education) ;
- in the third and fourth years, family planning and sex pathology are an integral part of the classical courses and practical work in gynaecology and obstetrics. If the students so wish, they can participate in the activities of the contraceptive clinic.

This training gives future general practitioners the basis needed to work in family planning, and encourages future specialists to find a vocation in this subject.

b) At the same time, midwives should be enabled to take part in the activities of family planning centres, and particularly in the provision of post-partum advice. The midwives' rôle can be decisive : their contact with pregnant women and young mothers gives them a golden opportunity to pass on information to this population group. This has already been understood in some countries.

c) A special effort should be made to reach the paramedical professions, particularly nurses and social workers. Too often they play a negative rôle by their lack of knowledge of family planning. Teaching and practical training in this subject should be included in the basic educational programme for nurses.

d) Practising physicians should take theoretical and practical postgraduate training in order to keep up-to-date with new developments.

e) The problem of preparation of teaching staff is a difficult one. The departments of gynaecology and obstetrics in university hospital centres provide the natural framework for teaching of family planning. Yet in present circumstances those in charge appear to be absorbed by other tasks, and on the whole not very highly motivated. It would perhaps be a good idea to give teaching responsbilities to the practitioners who run the family planning centre, or to call on consultants.

Conclusion.

The era when motherhood was something to be endured without happiness is definitely past. Happy and voluntary motherhood has now seen the day as a result of technical progress. It requires the technical cooperation and moral support of the medical profession. But principles have taken precedence over teaching, and the university has not kept up with life. The university must now adapt its organization and introduce new methods in order to make possible the joint training of the medical and the paramedical professions in family planning, and true integration of contraception into public health.

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